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1:72



Bf 109F-2 & Bf 109F-4

**WUNDERSCHÖNE NEUE MASCHINEN**

- Pt. I -



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# CONTENTS

4 ■ EDITORIAL

6 ■ HISTORY

Bf 109 F-2 & Bf 109 F-4

Rufe pt.II

Letecká vojna nad Ukrajinou - *Migs fly East!*

Letecká vojna nad Ukrajinou - *Another calm before the storm*

35 ■ BOXART STORY

The doom

Hickam Field Zero

Friedrich Eberle

38 ■ KITS

Sopwith 2F.1 Camel ProfiPACK 1/48

WUNDERSHÖNE NEUE MASCHINEN pt.I

DUAL COMBO Limited 1/72

A6M2 Zero Type 21 Weekend 1/48

Tempest Mk.II Weekend 1/48

Bf 109G-6 late series ProfiPACK 1/48 reedice

66 ■ BRASSIN

86 ■ PHOTO-ETCHED SETS

92 ■ BIG ED

102 ■ BUILT

P-51D-10 Mustang 1/48

SAMURAI 1/48

Sopwith Camel Comic 1/48

110 ■ ON APPROACH – July 2023

128 ■ TAIL END CHARLIE



# EDITORIAL

Good day, Dear Friends

Among the 84 new items being released for June, the 72nd Limited Edition kit dubbed "Wunderschöne neue Maschinen" stands out. This "Wonderful New Machines" kit centres around the Messerschmitt Bf 109F, which, when introduced into the arsenal of the Luftwaffe at the beginning of 1941, brought an increase in the performance and quality of German fighters committed to aerial combat. It could not have come at a better time, when, after the end of the Battle of Britain, the RAF went on the offensive and took the fight to over German-occupied Western Europe. The Luftwaffe, as of June 22, 1941, was weakened in the West by the transfer of a large number of its units to the east to support the ill-fated attack on the Soviet Union. It had faced British pressure for a long time with success, causing the RAF significant losses. Fighter units were also successful on the Eastern Front, in this case enormously so, thanks to the inferior qualities of the Soviet fighting machine. We know today that a future collapse was hidden in all those initial successes, but that does not change the fact that the Bf 109, in many different developmental versions, would have a profound impact on aerial combat and would become an undisputed legend of world aviation.

## The new Bf 109 F and its new design features

Our development of these new kits took over three years. This may seem like an unreasonably long gestation period, given the fact that we have the 1:48th scale kits under our belt. However, this fact carries much less weight than one would expect. This is because there are so many changes in the design process from those larger kits, mainly because technology has changed so much since the 48th scale versions were released some ten years ago. These changes are recognized as being for the better, because they have opened up so many possibilities in terms of design solutions. For the Bf 109 F/G/K series, we focused on overall simplification of the kit, reducing the number of parts used and strengthening the sprue gates. Some solutions are interesting and even unique. For example, the main landing gear assembly, where the main landing gear legs are molded together with the oleo scissors and include seating elements that allow the connection to the landing gear covers without the need to search out optimal, symmetrical spatial relationships. And most importantly, it has a dedicated anchoring element that anchors the leg in the wing so that the tongue slides into a corresponding groove in the wing, behind the wheel well. Three walls of this groove are part of the cockpit floor, and after the wing is glued to the fuselage, the feature is closed

off by a fourth wall, formed by the lower surface of the wing. At the end of the construction, it is enough to insert the landing gear legs into the groove which, at the same time, gives the landing gear legs a precise position in relation to the wing. So there is no need to monitor and adjust the geometry of the landing gear in any complicated way. It is the same with the tail wheel, which is also installed by way of insertion using a similar tongue and groove system. The design of the tail surfaces is also an innovative feature. The fin and rudder is molded as a whole with a tongue that widens as it extends away from the part. This then fits into a groove of the same shape that is molded in both halves of the fuselage. Then when the tongue is inserted into the fuselage halves and the assembly is sealed off, the physical shape of the seating elements sort of pulls and pinches the fin toward the fuselage, perfectly seating it with the correct geometry. But be aware that the fin must be glued to one half of the fuselage and closed with its corresponding other half, and can't be inserted into the assembled fuselage per se, because that won't allow the positioning system to take over and line everything up correctly. To glue this assembly together, it is a good idea to use classic solvent glue, which keeps the glued joint active for some time. This will allow the rudder to be retracted into the hull. There are certainly alternative options for gluing this assembly, but in any case, it's good to know about this feature, which is unusual but I'm not sure any reviewer will even notice it. You then insert the single piece elevator into the cut-out in the rudder assembly. This is a tight fit by design. The fact that the two parts have practically no play means that they settle into each other in a precisely defined and correct position. And it is also one of the sub-assemblies of the model where there is practically no need to use glue, as it holds together on its own very nicely. The whole thing is sealed off with the rudder and voila! – you're done. To the contrary, the cockpit assembly is inserted into the assembled fuselage, sliding in from below and you don't have to worry that it won't fit. It fits precisely. I just don't recommend pressing too much on the sides of the fuselage when gluing in the cockpit, the glue will soften the material and the fuselage will narrow in that area and could create a gap between it and the wing. This happened to me while test gluing one of the two models I built. It is best to glue in the cockpit and cover the joint with a quick flashing type glue and leave it alone without any pressure. It will settle in by itself. You will find other similar details and assemblies on the model, for example the oil cooler does not need to be glued into the fuselage, and the wing dynamics allow for a very good fit as well.



## The new Bf 109 as an easy build

Specific issues come up with the Bf 109F series due to the evolution of many small but nagging variations throughout its development. The F mods went through a rather complex development and the pace of innovation was frantic. And so it wasn't too simple, they were produced in five factories with their own little trademark elements sprinkled liberally on individual aircraft. As a result, we have two different wingtips to cover different position light arrangements, fuselages with or without rear reinforcements under the tail, two types of seat and two shapes of the main landing gear well, round or square. An aircraft that even boasted one round and one square well made it to our marking options. This may prove to be a challenge for less experienced modellers and we won't get into how you should execute the arrangement, suffice to say that the experienced ones will tackle this without the need to bombard us with desperate emails over this spicy little point of interest. The design of the kit takes these distinguishing features into account. Most of the small parts are on the U-sprue which is common for all upcoming versions including all Bf 109 G and Bf 109 K releases. Your first glance at the kit may give you the impression that it is a complicated ... dare I say "fiddly" ... affair. But in reality, the opposite is true. This kit is relatively simple in terms of construction and is especially very user friendly and inviting to the modeller! I've already built two of these little gems, so I can state this with complete sincerity. Among other things, this is manifested by the fact that some small parts, such as the position lights for the F-4, the sight, the antennae or the aileron balance horns are duplicated on the sprues. Yeah – you know how it is, and so do we. You pick up a small part with your nifty little tweezers, press just a little too hard, and the thing gets sucked up by the vacuum cleaner at some future point without you ever seeing the damn thing again.



There is a total of fourteen marking options, carefully taking into account the physical attractiveness of the markings, balanced with a strong consideration for historical significance. This latter point focuses on areas of operations, of which there were three for the Bf 109 F, i.e., the Western Front over occupied France and the English Channel, the Eastern Front over the Soviet Union, and the Mediterranean theatre with emphasis on North Africa. To be honest, it will not be possible to build any combination that includes one specific subtype from the two kits included in the "Wunderschöne neue Maschinen" package. But this is usual with such Limited Edition Combo kits, and this is why the Overtrees option exists. These are of course available.

## The new Bf 109 – what's next with it?

The future looks great for the Bf 109 in 1:72nd scale. In August, we will release the ProfiPACK version of the Bf 109F-4, and it will be available as a new release at the US IPMS Nationals in San Marcos, along with the FM-2 Wildcat in 1:48th, along with the Limited Edition F-104C in the same scale (Kinetic plastic). The ProfiPACK version of the F-2 will follow in September, and at the end of the year, probably in December, we'll see "Wunderschöne neue Maschinen" Pt 2, dedicated to the Bf 109 G-2 and G-4. After the New Year, the G-6 will arrive, and this will lead to the G-14 and G-10 to K-4. This year, however, there will be one more project dedicated to the Bf 109. This will be the Bf 109 K-4 1:48th. Among other things, it is interesting in that, just like the actual article, it will bring significant changes to the original design of the kit, in many ways similar to the 72nd version released today. The new Bf 109 K-4 will not include a single mold used for the Bf 109 F and G kits. When introducing the 72nd Bf 109 F, we received some disgruntled feedback on Facebook, because according to their authors, it took a long time, and we make promises that are hard to keep. But without apology, we try our best to keep up with our release schedules, and yes, our projects can take a long time. That's because we try to do them right. You wouldn't like them any other way, would you?

## KITS

We are used to the fact that modelers are never satisfied, and we understand that. One of the favorite pastimes of modellers is that when we announce something new, for example the Bf 109F in 1:72, immediately there are statements made that, great, but why not in 1:32nd?, or why not something completely different, like a Catalina in 1:48th. Or even the currently active Bf 109 K-4 or G-12 in 1:48. We would like to comply, but within the full range of modelling demands, it's just not humanly possible. We are only people and Superman and Spiderman already have ventures elsewhere, regardless of the fact that we unfortunately could not afford such capable people.

Nevertheless, we have one more kit premiere for June, the naval Camel 2F.1 in 1:48th scale. It is

the last of the Camels we are releasing as part of the current Camel project. It is undoubtedly an interesting machine, standing at the birth of naval aviation. Among other things, its wing did not fold like that of later and contemporary ship borne aircraft, but the fuselage did. The path of progress is full of dead ends, is it not? There are six marking options, mostly of birds operating off of Royal Navy ships, although not always carriers. You can read about the 2F.1 Camel and their deployment in Jean Laffite's article in the historical section of today's newsletter, and about the most famous action of naval Camels in the Boxart Story by Richard Plos. And if you buy the naval Camel, remember we have a 3D printed wicker seat. It's a little older print, but still a little gem!

We still have a 48th scale ProfiPACK, a late version Bf 109 G-6 reissue. This is an interesting kit for several reasons. It is commercially one of the most successful kits we have ever had, features a box art by maestro Shigeo Koike, and it is a version that the producers never paid too much attention to. In short, even this older thing has something to it. And while I'm on the subject of pointing out interesting accessories, the simultaneously released printed cockpit complements this kit very nicely. This new printed item replaces the older cast resin counterpart. I have already explained the advantages of printed sets compared to cast resin ones several times in the past, now you have a unique chance to try them out in person. The new cockpit has the catalog number 648843.

The range of new kits is complemented by two older items in 1:48th scale. There is the Tempest Mk.II, and, perhaps more significantly, the A6M2 Zero Model 21. We paid a lot of attention to this, especially the boxart image and the color scheme and marking options. Even though the Zero may, perhaps, be considered, at least in terms of the service schemes, to be a rather boring aircraft. I dare say that there are some damn interesting machines in the new Weekend version of the kit. And in addition to these there are also interesting stories to go with them to boot, the most epic of which is the boxart subject. You can also read about that specific aspect of the kit in the Box art story in today's edition of our newsletter. I would also like to remind you that you can buy the new Zero 21 in our e-shop with a bonus, the Space set, just as you can have the "Wunderschöne neue Maschinen" kit with printed exhausts. The event is on while stocks last.

## ACCESSORIES

With respect to the new accessory sets, I would like to draw your attention to several large 3D printed sets. In addition to the already mentioned cockpit for the Bf 109 G-6, there is a new Fw 190 F-8 cockpit and a radio equipment set for the Bf 110 G. All sets are designed for the appropriate Eduard kits and are in 1:48th scale, as is the engine for the F4F-3 Mid Production Wildcat. In June we are also releasing a printed cockpit for the Tamiya F-35A, also in 1:48th. The objection I often encounter with

accessory sets for stunning models like this F-35 is that these virtually perfect models don't need any improvements and aftermarket items for them are unnecessary. However, our sales results argue differently. Modellers tend to invest in aftermarket accessory items for the best kits of a given subject matter available. The reason, I think, is that well-made accessories are almost always better than top-of-the-line plastic, and will potentially push the model to absolute perfection. Often, in fact, little is enough for this, perhaps just an exhaust nozzle or a well-made seat. The cockpit is just a higher league. To the large set category, I would add the engines for the equally high-quality B-25J Mitchell from HKM. In addition to these, there are also a number of smaller sets on offer, including for the new Bf 109F in 1:72nd and 2F.1 Camel in 1:48th.

Interesting new releases are not limited to the prints, and can also be found among photoetched sets, masks and Space sets. Among them are sets for the 32nd Spitfire MK.I from Kotare, the 48th scale Mi-8MT from Trumpeter, the F-4E Phantom II from Meng and the 72nd MiG-29 from GWH. There are also new kits for the old but still excellent Do 335 kit from Tamiya and the PV-1 Ventura from Academy.

## HISTORY

In the historical article section of this month's Info, in addition to the already mentioned article about the 2F.1 Camel, we have a historical-technical article about the development of the Messerschmitt Bf 109 F. I wrote it myself. It follows in the footprints of other similar articles, such as the one outlining the technical development of the Spitfire. Series on Air Combat over Ukraine by Miro Barič continues with another two continuations, as we had to skip the No. 14 part in the previous English issue. So, there is double batch of the information about what was happening over Ukraine during the last months. Things are getting interesting in Ukraine, and I think Miro's series has interesting times ahead of it as well. Large articles are complemented by smaller but no less interesting Boxart Stories. Richard Plos writes aforementioned story about the raid from the aircraft carrier HMS Furious on the Zeppelin base in Tondern, Jan Zdiarsky describes the fate of Major Eberle, the Bf 109 G-6 pilot from the boxart by Shigeo Koike, and Jan Bobek describes the epic story of the downing of Major Swenson's B-17 during the landing at Pearl Harbor on December 7, 1941 which is the event depicted on the boxart of the Zero 21. This was an event that was a scene that even made it into the famous movie *Tora! Tora! Tora!*. It's a scene that still runs chills up and down the spine!

I won't keep you anymore. You've got some reading to do!

Happy Modelling,  
Vladimír Šulc



# Bf 109F-2 & Bf 109F-4



Text: Vladimír Šulc

**No other aircraft is more closely associated with the rise and fall of the Luftwaffe during the Second World War than the Messerschmitt Bf 109 fighter. Its early versions became the symbol of German dominance of the skies over Europe in the first half of the war, and its development ensured its competitiveness with newer Allied types. The distinguishing line between the older versions and the later developments was defined by the Bf 109F, nicknamed the 'Friedrich', which brought about a slew of changes from the preceding 'Emil', first and foremost in the powerplant.**

The history of the Bf 109 began to be written at the end of March, 1933, initiated by the Reich Air Ministry's specification L.A.1432/33, calling for the development of a single-engine fighter monoplane. The competition for contracts included Arado, Heinkel, Focke-Wulf and Bayerische Flugzeugwerke. The latter had, as its technical director, Willy Messerschmitt, whose reputation was greatly enhanced by the success of the recently completed Bf 108 courier aircraft. Messerschmitt's goal was to design an aircraft with the best possible ratio of performance to weight and size. This would involve the cleanest aerodynamic lines possible. Over the course of the next several months, a number of prototypes were produced, which were mostly used for testing and further development. The end result was a relatively small aircraft with aerodynamically gentle lines and progressive design innovations, such as the use of the low-wing concept, a retractable landing gear, a very thin wing profile, leading edge slats, landing flaps

and a weapon firing through the propeller hub. Even the enclosed cockpit or the stressed skin fuselage wasn't common four years before the start of the Second World War. Messerschmitt's Bf 109 was therefore a very promising project from the very beginning of its development, and it somewhat surprisingly won the competition over designs submitted by its more renowned competitors. The problems with the Jumo 210 powerplant, which was a component of the first phase of development, were only solved by replacing it with the more advanced DB 601. This, together with the later DB 605, is inextricably linked to the entire development and service of the Messerschmitt Bf 109. The inverted inline V-12 engine powered several tens of thousands of Bf 109s in more than 25 versions.

## **Bf 109E**

The first combat deployment of three test Bf 109s took place during the civil war in Spain, where these aircraft were sent in December 1936.

Preproduction aircraft were primarily intended to demonstrate the capabilities of the plane in modern aerial warfare. Subsequently, series machines of the Bf 109B-1 variant began to see combat deployment with 2.J/88 Legion Condor. Germany also used sports competitions to demonstrate its air prowess. The success of the Bf 109E prototypes at the air show in Zurich in the summer of 1937 was additionally complemented a few months later by the establishment of a world speed record of 610.95 km/h. The Bf 109E was a breakthrough version, replacing the Jumo 210 engine with a more powerful and reliable Daimler-Benz DB 601 unit driving a VDM 9 three-blade variable pitch propeller. Production of the E-1 versions armed with four 7.9 mm machine guns and the E-3 armed with two 7.9 mm machine guns plus two 20 mm MG-FF cannon ran in parallel from the beginning of 1939. Thus, the Luftwaffe entered World War II armed with the most modern and powerful single-engine fighters of its time, forming the



backbone of its units until the spring 1941. From the invasion of Poland through the Sitzkrieg on the Western Front, the invasion of Norway, the Battle of France and the Battle of Britain, the Bf 109E ensured the technical and tactical superiority of the Luftwaffe over its opponents. After the Battle of Britain in the autumn of 1940 and in the winter months of the following year, however, it became increasingly clear that the time was ripe to replace the Emils with a more potent successor.

#### Bf 109F

This would become the Bf 109F, the development of which had in fact already begun during the preparation for series production of the Bf 109E in the autumn of 1938. The new project was designed around the new DB 601E engine with an estimated maximum power of 1350 hp, compared to 1055 hp for the DB 601A engine. In addition to the use of a more powerful engine, the intention of the design team led by chief designer Robert Lusser was the overall aerodynamic refinement of the airframe, combined with the introduction of a number of technical improvements. It saw the light of day by way of a complicated development, leading through prototypes and the pre-production Bf 109F-0, built mostly around the Bf 109E airframe and still carrying significant elements of the original design. In summary, all design changes were reflected in the first series version, the Bf 109F-1, radically different in shape from both the Bf 109E and the prototypes and the pre-production Bf 109F-0. Since the DB 601E engine was not yet available during the long development of the various concepts incorporated into the new design, the prototypes and pre-production Bf 109F-0 were powered by DB 601A engines, as was most of the Bf 109E production. Production Bf 109F-1 and F-2 aircraft were powered by DB 601N engines, and only the Bf 109F-4 version received the planned DB 601E. Before we deal with the development of individual versions of the Bf 109F, it will be appropriate to first familiarize ourselves with the development of the power egg, the DB 601 engine, and also the evolution of the engine cooling system.

## ENGINES USED IN DEVELOPMENTAL VERSIONS OF THE Bf 109F

#### DB 600

The DB 601 engine was a development of the DB 600 carburetor equipped engine, development of which began in July 1933. It was a liquid-cooled inline turbocharged inverted twelve-cylinder unit of 33.9 L displacement, with a single-stage supercharger and carburetor. In the A version, it offered 986 hp, with gradual development it



*Bf 109 F-0 WNr. 5604 VK+AB. The aircraft with the DB 601 A engine already had the compressor intake with a circular cross-section. It was used to test the newly designed glycol cooler flaps combined with landing flaps. The wing still had the straight ends of the Bf 109E.*

Photo: SDASM

worked its way up to 1036 hp in the DB 600 Ga version. The first Bf 110 V1 prototype with DB 600 engines reached a speed of 505 km/h (314mph) on May 12, 1936. The DB 600 of various versions also powered the first versions of the He 111 B, G, etc. However, problems with the supply of these engines led to their replacement by more readily available units, mainly the JUMO 210 engine, which in the D version also powered the first versions of the Bf 109B, C and D.

#### DB 601A

The fundamental innovation of direct fuel injection into the cylinders of the DB 601 series made a significant contribution to the advancement of the line and in the further development of the Bf 109 and Bf 110. The DB 601Aa, production of which began in March, 1937, had the same displacement as the DB 600 at 33.9 liters, and the compression ratio of 6.8:1 was also the same. Also unchanged were the bore and stroke of the cylinders (bore 150 mm, stroke 160 mm). The DB 601A used 87 octane B4 gasoline, introduced as the standard aviation gasoline in early 1939. Maximum power output of 1160 hp (1175 PS) at 2500 rpm was achieved by the DB 601A at an altitude of 1700m (5577ft).

However, this output was only achieved for a short time when the engine's filling pressure was increased to 1.40 atm. The use of boost was limited to one minute. On the ground, the highest power with the same parameters was 1085 hp (1100 PS). At a filling pressure of 1.30 atm and 2400 rpm, the highest (combat) power on the ground was 986 hp (990 PS) and at an altitude of 2100m (6890ft), this was 1055 hp (1070 PS).

#### DB 601N

In the following version, the DB 601N, higher performance was achieved by increasing the compression ratio to 8.1:1 and introducing 100 octane C3 aviation fuel. The bore and stroke of the cylinders remained the same as in the DB 601A and DB 600. Using an emergency boost pressure of 1.42 atm at 2,600 RPM, 1,321 hp (1340 PS) could be produced at an altitude of 2,100 m and 1,233 hp (1250 PS) on the ground. The use of boost was possible for three minutes. Combat performance at 1.30 atm boost pressure and 2400 RPM provided 1,168 hp (1,185 PS) at 2,100 m and 1,085 hp (1,100 PS) at sea level.



*Ground crew maintaining the weapons of Bf 109 F of JG 54 "Grünherz" on the Eastern Front in 1942.*

Photo: Bundesarchiv





*Bf 109 F-4/Z during an oil refill. The aircraft has circular wheel wells, a larger compressor intake and a VDM 9-12087A propeller with wider propeller blades.*

### DB 601E

The further improvement in the performance of the DB 601E engine was not achieved by further increasing the boost pressure or the octane rating of the engine. The DB 601E engine actually reverted to the easier to produce B4 gasoline with an octane rating of 87. The compression ratio was 7.0:1 on the left side cylinders and 7.2:1 on the right side, and was thus lower than the DB 601N. The cylinder bore and stroke were the same as in the DB 601A and DB 601N, bore being 150 mm and the stroke 160 mm. As a result, the displacement was also the same at 33.9 l. That's about all that remained the same. There were a lot of new and modified parts: a new engine block, metering pump, boost pressure regulator, injection pump drive housing and mixture regulator for the injection pump, new reinforced connecting rods, rocker arms, connecting rods,

new intake manifold and rebuilt engine cylinders with larger intake manifold and modified valves. Using an emergency engine boost pressure of 1.42 atm, at 2700 RPM, the highest output was 1,420 hp (1,440 PS) at an altitude of 2,100 m and 1,331 hp (1,350 PS) at sea level.

Combat power at 1.30 atm boost pressure, 2,500 RPM was 1,262 hp (1,280 PS) at 2,100 m and 1,183 hp (1,200 PS) at sea level.

The development of the new version of the DB 601 engine was long and rather complex, starting at the end of 1938, with series production of the zero series of 180 units (later increased to 290 units) beginning at the Werk 90 factory in Berlin-Marienburg in the second half of 1940. Then, in January, production at the Büssing factory in Braunschweig and Henschel in Kassel was initiated. When the engines were introduced into service, they had cooling problems, which

led to a limitation of the maximum permissible engine power during take-off and climb. There were also problems with the life of the piston rings and the bronze valve bushings. There were also problems with the spark plug cables, which quickly wore and burned out. For these reasons, most engines had a service life of only 50 hours, with few engines reaching 100 hours, which was a far cry from the expected 100 service hours to a midlife overhaul and 200 service hours to a general overhaul. Back in May 1942, during a joint inspection by the procurator of the Daimler-Benz company, von Berg and Colonel Galland (at that time in the capacity of the Fighter Air Force Inspector-General der Jagdflieger), a critical situation was discovered for the units on the Eastern Front, armed with the Bf 109 F-4, stemming from the unsatisfactory condition of the engines. Heavy engine wear threatened to ground a large part of the machines in operation and significantly reduce the combat capability of the fighter units. It can be seen from this that although there was a remedy by modifying the problematic components, such as the introduction of steel valve bushings and vented wiring harnesses, this remedy was time consuming and engine problems accompanied the Bf 109F-4 for practically the entire first year of their service. That is, the entire time of their front-line service, because in the summer of 1942 the first Bf 109 G-2s with DB 601A engines were already making their way to Luftwaffe fighter units.

### Coolant Radiators

Due to the anticipated use of the more powerful DB 601E engine, new radiators were developed for the Bf 109F and the engine cooling system

## AVIATION FUELS IN THE LUFTWAFFE

Two synthetic aviation fuels were used in the DB 601 series of engines. Both were produced from brown coal by Fischer-Tropsch. The final mixtures, depending on the required type of fuel, were produced in the so-called WiFo depots (Wirtschaftsforschungsamt) according to the requirements of the individual branches of the armed forces.

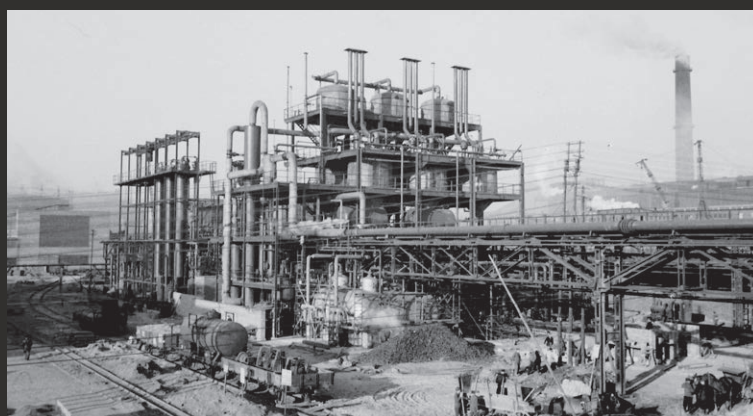
B4 Flugmotorbenzin was a synthetic gasoline with an octane rating of 87. It contained tetraethyl lead and 25% aromatic additives. It was colored dark blue, and it was graphically symbolized by a yellow triangle outlined in

white with the number 87 or B4 in it. It was the synthetic equivalent of B2 gasoline, produced from petroleum.

C3 Flugmotorbenzin was a synthetic gasoline with an octane rating of 100. It contained tetraethyl lead and 45% aromatic additives. It was colored dark green, and it was graphically symbolized by a yellow triangle outlined in white with the number 100 or C3 in it. This was the synthetic equivalent of C2 gasoline, produced from petroleum.

For a more detailed explanation of the meaning behind the octane rating, please [see](#).

Photo: Edward D. Beneš archives, Aviation archives of Northern Bohemia



*Sudetendeutschen Treibstoffwerke AG Brück, located between Most and Litvínov in northern Bohemia, was the third largest producer of synthetic gasoline in Germany and the occupied territories. Construction of the plant began in May 1939, and the first train of synthetic gasoline was dispatched from STW Brück on December 15, 1942. Albert Speer, Reich Minister of Armaments, attended the opening ceremony. The plant was producing up to 50,000 tonnes of synthetic fuel per month at full operation. In the last year of the war, after the Allied bombing offensive against the German fuel industry began, it became a frequent target of Allied air raids, mainly led by the 8th USAAF from Britain and the 15th Air Army from Italy. The first raid on this chemical plant on 8. USAAF carried out on May 12, 1944, and 12 more major American raids followed by the end of 1944. A heavy night raid was carried out by 231 Lancasters of RAF Bomber Command on January 16, 1945, virtually putting the factory out of action for the rest of the war.*



was updated. The coolant radiators had a completely new design compared to those of the Bf 109E series of aircraft, which not only ensured a higher efficiency of the cooling system, but was also simpler to manufacture. The manufacturing complexity of the new radiators was said to be 50% that of the older Bf 109 radiators. Aluminum alloys were used extensively in the construction of the new radiators. Although the new radiators were larger, with a frontal area of 0.334 m<sup>2</sup> compared to the Bf 109E's 0.292 m<sup>2</sup>, they were logically more efficient due to the cross fall, and they were also aerodynamically more advantageous due to the fact that they were embedded deeper into the wing. The air flow was regulated by two hydraulically opening flaps on the trailing edge of the wing, the opening and relative position of which were automatically controlled by a thermostat. At the same time, when the flaps were extended, the flap on the front of the radiator opened. If necessary, the pilot could bypass the automatic the automatic feature and set the coolers manually with a lever in the cabin. The cooling system was filled with 75 liters of a mixture of glycol and water, two separate overflow tanks of the cooling system, each with a volume of 5 liters, were located on the sides of the engine block (on the sides of the crankcase). In the Bf 109E, the U-shaped coolant overflow tank was located on the front of the engine block.

The cooling system of the Bf 109E and the first Bf 109Fs was extremely sensitive to damage, most often by gunfire. Any interference with the radiator or other part of the cooling system meant a rapid loss of coolant, followed by engine seizure. This was a problem common to all fighters powered by liquid-cooled inline engines. The P-51 Mustang, for example, had a large underbody radiator which was extremely susceptible to damage and a single lucky shot meant an almost immediate engine seizure and a total loss of the aircraft. Splitting the cooling system between two radiators, one under each wing, offered a theoretical advantage. But this was not the case with the Bf 109E and Bf 109F-1 and F-2, where the cooling system was a single-circuit affair with one pump. In February and March 1941, a design modification of the system was successfully tested on the test Bf 109E, consisting of the introduction of separation valves (Kühlerabschaltventile), which, in the event of damage to one of the radiators, enabled the pilot to close it and separate it from the other part of the cooling circuit. This modification (Kühlerabschaltung) was introduced into series production on July 10, 1941 by regulation Änderungsmitteilung I 181. The earlier claim (Prien/Rodeike) that these valves were supplied as retrofit kits for previously produced aircraft has no basis in any known regulation and appears that such sets were actually never produced and delivered to units. To the contrary,

new aircraft on the production line were equipped with separation valves as standard, which, given the date of the regulation, would involve aircraft from the F-4 version on. The claim from the same source that the shortage of these kits and the high demand for them led to a race by groundcrew to cannibalize these items from shot down and damaged aircraft seems to be a reasonable one, where most of the Bf 109F-2s produced and part of the F-4 (as well as all Bf 109Es still in service) did not have these valves. Even the Bf 109F-4s produced had them as standard from the second half of July 1941 at the earliest, and possibly even later. The use of these valves cannibalized from aircraft that were no longer combat capable makes sense. A claim regarding the stopping of the installation of these valves in the Bf 109G is probably also erroneous. These valves are, for example, documented on a British captured Bf 109 G-2 carrying the W.Nr. 10639.

### OIL COOLERS

The oil cooler was located as in the Bf 109E, under the engine. Like the coolant radiators, it was a new design, developed for use with the

DB 601E engine and was already installed in the Bf 109F-1 powered by the DB 601N. The Fö 699B oil cooler (9-6130A – Vogt) had a frontal area of 590 cm<sup>2</sup>, the two-position control flap at the outlet of the cooler (outlet edge) was hydraulically opened and automatically controlled by a thermostat. It had only two positions, closed/open, the difference between the two positions was 4 cm. The control hydraulics were not connected to the aircraft's hydraulic system as such, but used oil from the engine's oil pan. This amounted to 35 liters of oil (and 8 liters of air) in the DB 601N engine, and 36.8 liters of oil and 6 liters of air for the DB 601E. The Bf 109F-4/Z and part of Bf 109 F-4 Trop production were fitted with the new Fö 870 radiator (9-6150 Vogt). It had a frontal area of 650 cm<sup>2</sup> and a depth of 250 mm. Vogt also states that the first F-4/Z still had the original smaller radiator Fö 699B) with a frontal area of 590 cm<sup>2</sup>. The hydraulic system of the Bf 109F was expanded compared to the Bf 109E and, in addition to retraction of the main landing gear, also controlled the retraction of the tailwheel and the regulating flaps of the coolant radiators.



*Bf 109 F-0 PH+BE already had oval wingtips, but the intake turbocharger had a rectangular cross-section, characteristic of the Bf 109 F-1 produced by the WNF factory.*



*Bf 109 F-4 od 10. (Jabo)/JG 2 in France during the summer of 1942. The aircraft sports reinforcing stringers on the rear fuselage. The photo shows the typical position of the open landing flaps and the combined glycol cooler and landing flaps.*



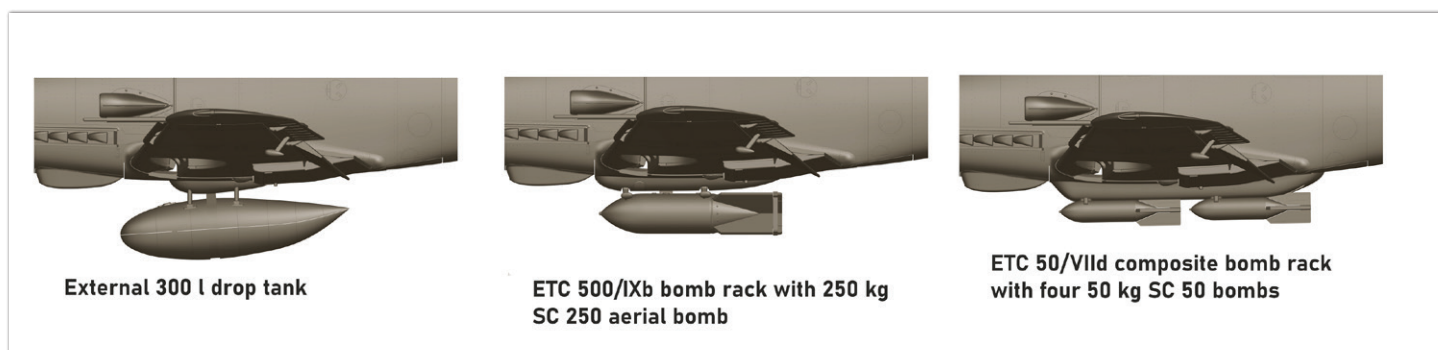
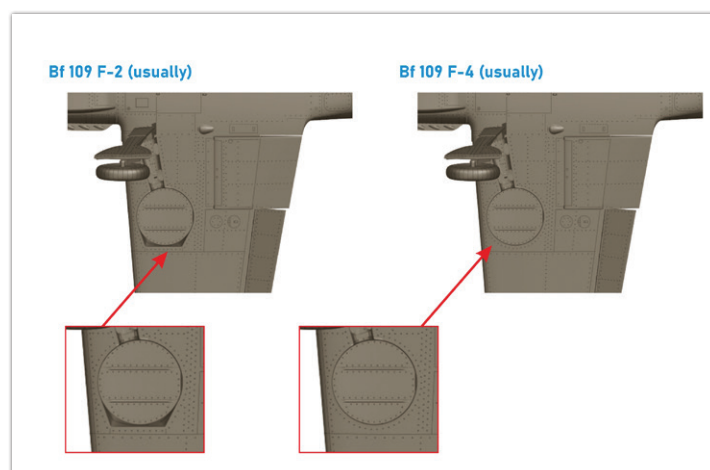
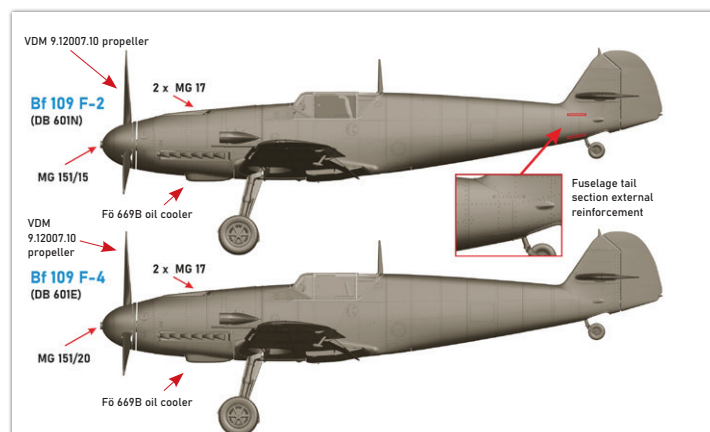
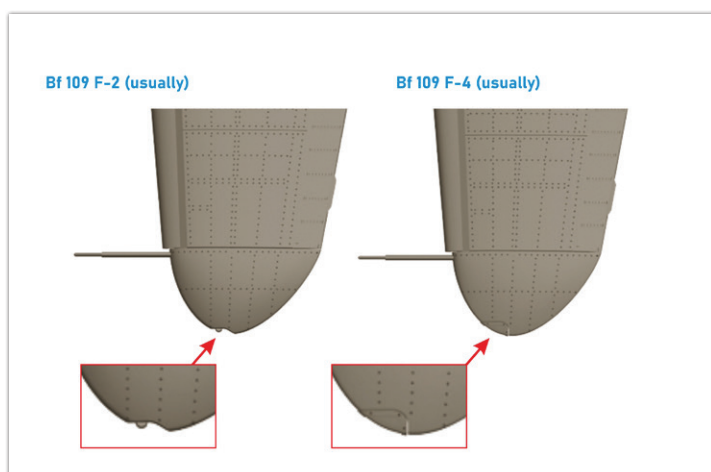
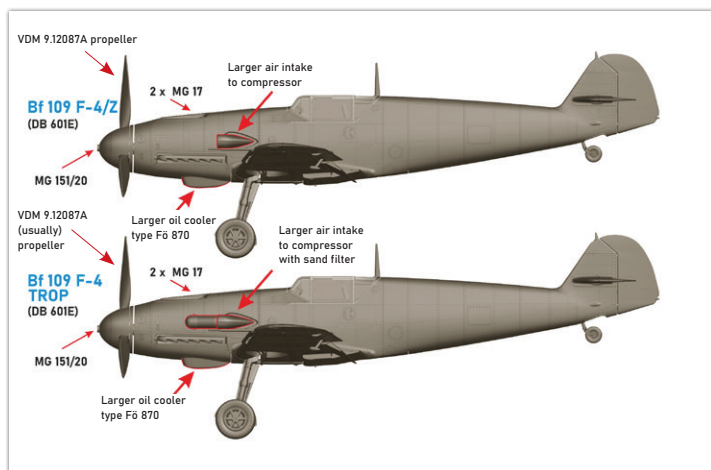
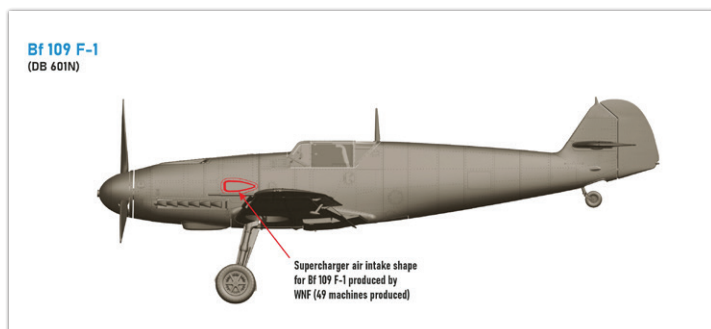
## PRODUCTION VERSIONS OF THE Bf 109F

### Bf 109F-1

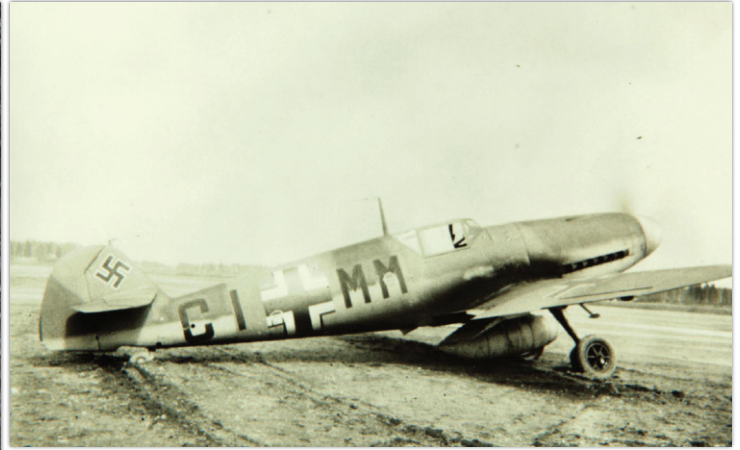
As already mentioned, the design of the Bf 109F underwent radical modernization and overall aerodynamic fine-tuning. Apart from the aerodynamic refinements in the nose, the introduction of a new spinner and air intake to

the circular compressor, a visible change of the Bf 109F compared to the Bf 109E was the absence of horizontal tail struts. The change in the armament arrangement was radical. Compared to the Bf 109E, this was reduced to an MG-FF fuselage cannon firing through the propeller hub and two 7.9 mm MG 17 machine guns above the engine. Due to the delay in the development of the DB 601E engine, the DB

601N engine was used to power the Bf 109F-1. Development delays also prevented the use of the planned MG 151/20 or MG 151/15 cannon, so the MG-FF (engine-mounted) cannon with a 60-round magazine was used. The propeller was the VDM-9.12007.10. The wing received an elegant wingtip curvature with a cut-out for a position light on the leading edge and, above all, new radiators, as described above, the control







*Oberstleutnant Werner Mölders, Commodore of JG 51, pictured with Oberleutnant Georg Claus (centre) in late 1940. Claus served as Mölders' Adjutant until October 18, 1940, when he was appointed commander of 1./JG 51. He was killed in aerial combat over the Thames Estuary on November 11, 1940, becoming the first airman shot down in a Bf 109 F-1.*

*Bf 109 F-4 Trop prior to delivery to JG 5, which operated in Finland. The aircraft already had a yellow band on the fuselage painted, which was the identification marking for the Eastern Front aircraft. The tropical camouflage of sand RLM 79 Sandgelb on the upper surfaces and blue RLM 78 Hellblau on the lower surfaces was complemented by fields of grey RLM 74 or 75 on the upper surfaces. The aircraft carried an additional 300 liter fuel tank.*

flap of which also formed the inner part of the flap system. The slats remained automatic as on the Bf 109E, the control surfaces with metal internal construction were fabric covered. The tailwheel was retractable. The fuselage fuel tank, located under and behind the pilot's seat, had a volume of 400 liters, the Bf 109F-1 not being equipped to carry a drop tank. The aircraft received the FuG VIIa radio, and in 1941 some were retrofitted with the FuG 25 IFF system. The sight was the REVI C12/D reflector. An important feature was variable VDM-9.12007.10 propeller, the switch between automatic and manual modes being located under the throttle lever.

The maximum speed is stated to be 595 km/h (370mph) at 5,200m (17,050ft), and 495 km/h (310mph) at sea level in combat mode. The rate of climb was 17 m/s (56ft/s), range 700 km (435 miles), with a ceiling of 12,000m (39,400ft). It is somewhat complicated when it comes to performance data, as sources differ somewhat. The figures presented here come from the records of the Test Center in Rechlin (E-Stelle Rechlin), and they are listed in their books on the development of the Bf 109 by M.Baumgartl and H.H. Vogt. M.Baumgartl also reports a maximum speed in emergency mode of 615 km/h (383mph) at 5,200m (17,050ft) and 515 km/h (320mph) at sea level. Series production ran at the Bayerische Flugzeugwerke (Messerschmitt - Mtt. Reg) in Regensburg from July (Prien/Rodeike) or August (Murawski) 1940, while Vogt and Valtonen quote the start of production as October 1940, but this does not seem likely. By February 1941, apparently 137 machines were produced by Mtt Regensburg (Vogt, Valtonen and Rodeike state 157 units). In November 1940, production of the Bf 109F-1 also began at the Wiener Neustädter Flugzeugwerke (WNF) facility, where up to fifty aircraft were produced by January 1941 (Vogt, Valtonen, Prien/Rodeike claim 49 machines). The aircraft produced by the WNF

factory are different from those made by Mtt. The Regensburg examples differed in details, such as the intake to the compressor having a rectangular cross-section, and probably also the shape of the aerodynamic transition between the wing and the fuselage, where there was a small symmetrical bulge above the wing spar connection pin to the fuselage, similar to the Bf 109E, as opposed to the Bf 109F and G fairing, which had an irregularly shape.

The new aircraft began to trickle to frontline units during the fall of 1940, but none of the combat units were ever completely re-equipped with the F-1 version. Stab/JG 51 was the first to receive them at the beginning of October. Major Werner Mölders made the first two combat flights on October 9th, 1940 with Bf 109F-1 WNr.5628 SG+GW, and by October 11th, he had shot down a Spitfire Mk.I from No.66 Squadron, RAF over Folkestone. It was Mölders 43rd kill, and the Spitfire pilot, P/O Pickering, survived the encounter with some injuries. In early November, several Bf 109F-1s were also received by 1./JG 51, which suffered its first loss when the commander of 1./JG 51, Oblt. Georg Claus, was shot down over the British coast. Smaller numbers of Bf 109F-1s were given to the replenishment groups (Ergänzungsgruppen) of JG 26 and JG 51 during November, with other units in France receiving individual pieces in early 1941.

As was usual when introducing new equipment to combat units, a number of defects and shortcomings appeared rather quickly. In addition to problems with the brakes and tire quality, a problem was found with the seat being positioned too far forward, which caused problems when pulling the control column back. The question remains whether this was the original seat of the same type used in the Bf 109E, or the new type with a separate seat and backrest integrated into the rear wall of the cockpit. Some F-2s were fitted with the same

seat as the Bf 109E, later machines and at least most F-4s had the aforementioned new seats. It is not entirely clear whether the new seats were replacements for unsatisfactory older seats, or whether the new seats were not satisfactory and were in some cases replaced by proven older seats, as indicated by some sources.

But the most serious problem was the insufficient integrity of the rear fuselage. In February 1941, three planes were lost when strong vibrations from the engine, transmitted to the structure of the aircraft, caused the failure of the tail section. The investigation of a fourth accident revealed structural problems and insufficient structural integrity of the connection of the tail unit with the last fuselage bulkhead. The problem was temporarily solved by adding four external stiffeners, two on each side of the fuselage at the last bulkhead. Most Bf 109F-2s built were later equipped with these reinforcements.

### Bf 109F-2

In November 1940, large-scale production of the first major version of the Bf 109F, the dash two, began at the AGO facility in Oschersleben, and began reaching combat units in January 1941. That same month, production also began at the WNF plant in Wienerneustadt, and later in the spring, it was also undertaken at Arado in Warnemünde, Messerschmitt in Regensburg and Erla in Leipzig. The F-2 version was again powered by the DB 601N engine, but this time the main armament was the new 15 mm MG 151/15 engine mounted cannon fed by a 200 round magazine located in the left wing root. Loading the cannon was not exactly a comfortable task due to the limited access to the magazine through two relatively small holes in the upper wing surface.

The increase in range by about 500 km (310 miles) was made possible by the installation of a drop tank under the fuselage, carrying 300 l



## GM-1

The nitrous oxide (N<sub>2</sub>O) injection system of the GM-1 engine cylinders allowed for a short-term increase in engine power at high altitudes (above 9,000m or 29,500ft). The principle of increasing performance is that when the mixture burns in the cylinder, nitrous oxide is decomposed into oxygen and nitrogen. Nitrogen cools the mixture and oxygen causes the mixture to become lean (the mixture contains more oxygen than fuel). Thanks to this, it is possible to add more fuel to the mixture, without the need to supplement the boost pressure with the compressor, because the necessary additional amount of oxygen to burn the fuel in the cylinder is obtained by the decomposition of nitrogen oxide. For this reason, the GM-1 system was used at high

altitudes. To increase performance at altitudes of up to 8,000 m (26,250ft), the water injection system MW 50 or MW 30 was later used, which reduced the temperature of the mixture by evaporating the water in the cylinder, but did not generate the necessary oxygen. This had to be supplemented by increasing the filling pressure with a compressor, but could no longer produce the necessary filling pressure at higher altitudes.

The GM-1 system increased the DB 601N and E engine power at 9,000 m and 2600 RPM by up to 246 hp (250 PS), and the aircraft's speed by as much as 90 km/h. Maximum N<sub>2</sub>O injection time was 3 minutes (Baumgartl – sources vary on the exact numbers).

(66gal), the same that already equipped the Bf 109E-7. The system of pumping fuel from the auxiliary tank to the main fuel tank was based on the principle of pressurizing the auxiliary tank with compressed air, dispensing the need for a fuel pump. It should be noted that photographs of the Bf 109F-2 carrying the centerline drop tank are very rare.

The Bf 109F-2 could also be modified for the fighter-bomber role by installing an ETC 500/IXb bomb rack under the fuselage to carry a 250 kg (550lb) SC 250 aerial bomb, or an ETC 50/VIII combined bomb rack for four 50 kg (110lb) SC 50 bombs. The designation of the bomb capable version was Bf 109F-2/B or Bf 109F-2/Bo.

In terms of performance, H.H. Vogt states a maximum speed of 630 km/h (390mph), and at sea level, 528 km/h (330mph). According to Vogt, the rate of climb is the same as that of the F-1, 17 m/s (56ft/s), a range of 700 km (430 miles), and a service ceiling of 12,000m (39,300 feet). M. Baumgartl, in a performance table derived from the British Research Institute R.A.E. at Farnborough, gives a top speed at 6,629 m (21,750 ft) 597 km/h (371 mph), 491 km/h (305 mph) at sea level. The Soviet institute NII VVS gives a top speed 561 km/h (350mph) at 2,900m (9,500ft) and 510 km/h (317mph) at sea level. The British data in this case are consistent with the German figures for the Bf 109F-1. All in all, this would correspond to the fact that both versions, the F-1 and F-2, were powered by the same engine with the same performance, while the differences in the design of the aircraft were essentially negligible.

The F-2 also had a number of shortcomings that manifested themselves in service. A report from early April, 1941 by the commander of Luftflotte 2, General-Field Marshal Kesselring, described twenty-four defects of varying degrees of severity. These were gradually addressed on the production line, but most were resolved with the next production version, the Bf 109F-4.

A total of 1,586 Bf 109F-2s (Vogt) were built, production ran in parallel at five factories: Mtt Regensburg (228 units produced), Erla Leipzig (219 units), AGO Oschersleben (378 units), WNF (169 units) and Arado Warnemünde (358 units), where production ended in August 1941.

### Bf 109F-3

This version was a direct development of the F-1, and featured a combination of the DB 601E engine and the MG/FF engine mounted gun. Production was stopped after 15 aircraft had been built after the new more powerful MG 151/20 cannon became available.

### Bf 109F-4

Production of the final and most powerful version of the Bf 109F, the dash-4, began at the WNF factory in May 1941, and the Erla factory in June. The first Bf 109F-4s arrived at front line



JG 27 Bf 109 F-4 Trop in North Africa. Mechanics are cleaning the barrel of the MG 151/20 cannon.

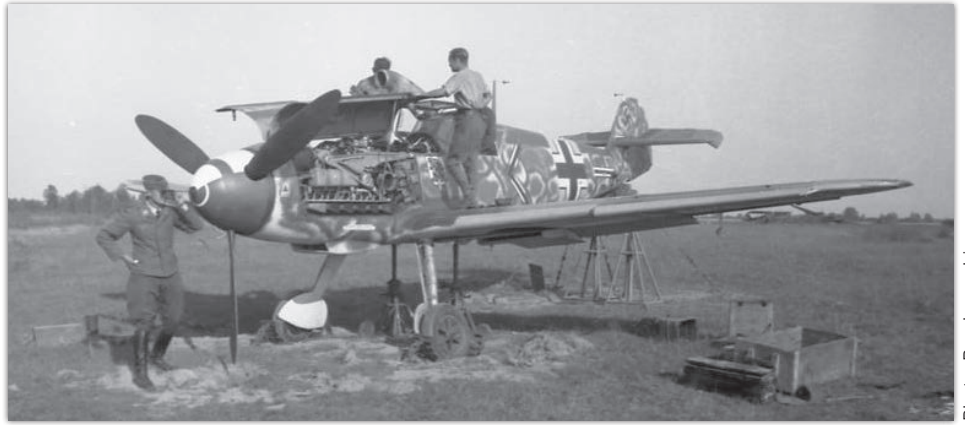


A photo reconnaissance Bf 109 Fs from the 4.(F)/123 in 1943 at Cherbourg.



units in June, 1941. The main update offered by the F-4 was the finally completed and fine-tuned DB 601E installation, driving a three-blade, variable VDM 9-12004.10 propeller. Armament was also improved via the installation of the engine mounted 20mm MG 151/20 cannon with 200 rounds. The fuselage machine guns remained the same, being 7.9mm MG 17s. A redesign and strengthening of the rear fuselage was carried out, thanks to which the need for external reinforcement was eliminated. Nevertheless, in the photographs of some Bf 109F-4s, the external reinforcements are still visible. A possible explanation for this is the use of older F-2 airframes either in initial production or over the course of subsequent conversions. The FuG 25 IFF unit was replaced by the more modern FuG 25a in the spring. The wing already had position lights as standard with a cover copying the shape of the wingtip curvature, introduced on later Bf 109F-2s. The wheel wells were either circular in shape, copying the shape of the tire, or angular, the same design as on the Bf 109E. The round design of the wells was more common. Here, it is reasonable to consider the use of F-2 airframes during conversion to F-4 standard by installing a DB 601E engine, or a different design of the wells from different manufacturers and production blocks.

Around 600 aircraft were equipped with GM-1 nitrous oxide injection system. These machines were designated Bf 109F-4/Z and had a larger 9-6150 (Fö 870) oil cooler, later standardized on the Bf 109G. These machines were also usually equipped with a VDM 9-12087A propeller with wider blades. A larger oil cooler was also part of the 576 tropicalized Bf 109F-4 Trop that were produced at the Erla factory in Leipzig. They also received a larger air intake to the turbo supercharger with a closable dust filter. Tropical equipment also included a vent on the top of the canopy windscreen and an emergency landing survival kit stowed in the rear fuselage containing a food pack, water and a Mauser K98 carbine. A larger air intake to the turbocharger was standard on later production Bf 109F-4s. Between December 1941 and April 1942, the WNF factory produced a total of 240 Bf 109F-4/R1s, allowing the installation of underwing nacelles housing MG 151/15 guns with 135 rounds of ammunition. However, gun nacelles were rarely used by combat units and they were widely used only later on the Bf 109G. Bf 109F-4s could also be converted to Bf 109F-4/B fighter-bombers, the bomb racks were the same as on the Bf 109F-2/B, but could not be fitted to the Bf 109F-4/Z or Bf 109F-4/R1 equipped with underwing gun nacelles. Some Bf 109F-4s were converted to photo-reconnaissance use as the Bf 109F-4/R2, R3, R4 and R8, which carried different types of photographic cameras. A total of 1,808 Bf 109F-4s of all versions were produced, including 1,034 at the WNF and 774



*JG 54 Bf 109 F-4 on the Eastern Front in the care of mechanics. The position of the deployed automatic slat can be clearly seen in the picture. That was its usual position when the aircraft was parked and still.*

Photo: Bundesarchiv

at the Erla factory in Leipzig. Production at the WNF factory ended in April 1942, and ERLA built the last Bf 109F-4 Trop in May of the same year. A month later, both factories, plus Messerschmitt A.G. in Regensburg, began production of the Bf 109G-2.

With respect to performance data, H.H. Vogt reports a maximum speed of 670 km/h (416mph), 540 km/h (336mph) at sea level. The rate of climb is stated by Vogt to be the same as for the F-1, 17 m/s (56ft/s), a range of 525 km (330 miles), and a service ceiling of 11,800m (38,700ft). M.Baumgartl gives in his performance tables sourcing the records of E-Stelle Rechlin a maximum speed 645 km/h (400mph) at 7,000 m (23,000ft), and 523 km/h (325mph) in combat mode. In emergency mode, he states a maximum speed of 670 km/h (416mph) at 7,000 m (23,000ft) and 540 km/h (336mph) at sea level, which corresponds to the data presented by H.H. Vogt. The increase in performance compared to the Bf 109F-2 also corresponds to the use of a more powerful engine.

#### **Bf 109F-5 and Bf 109F-6**

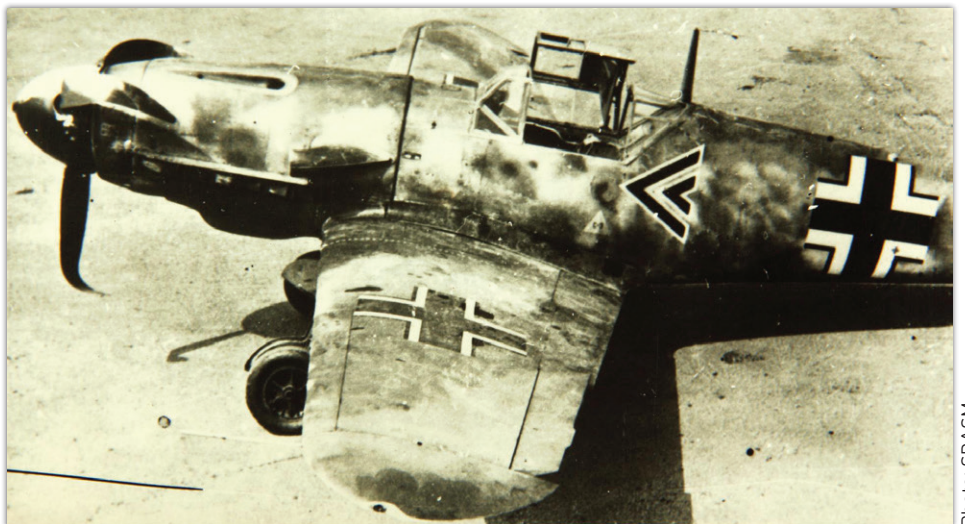
The Bf 109 F-5 was a high-altitude fighter and photoreconnaissance aircraft, based on the Bf 109F-2, equipped with the GM-1 boost system.

One aircraft was built and further development was stopped due to the RLM's lack of interest. The Bf 109F-6 was to be a heavy fighter again based on the Bf 109F-2, with an MG 151/20 engine mounted cannon and two MG 17 fuselage machine guns, plus two MG 17 wing mounted machine guns. No aircraft were built. The designation Bf 109F-6/U was used by Stab/JG 26 in France for Bf 109F-2 W.Nr.6750, which in addition to the standard armament was equipped with two wing-mounted MG FF/M cannon, similar to the Bf 109E. The aircraft was tested by Obstlt. Adolf Galland, who shot down a Spitfire over the English coast with it on November 18, 1941. At the same time, Galland tested another non-standard aircraft with the type designation Bf 109F-2/U1, armed with two 13 mm MG 131 machine guns located in the fuselage above the engine instead of the standard MG 17s

## **COMBAT USE OF THE Bf 109F AND ITS ADVERSARIES**

### **The Western Front, France**

In the first months of deployment of the Bf 109F on the Western Front, their opponents were



*The Bf 109 F-2 (W. Nr. 12764) was the first plane of F version to fall into RAF hands. Commander I./JG 26 Hptm. Rolf Pingel made an emergency landing near Dover on July 10, 1941 after an aerial battle.*

Photo: SDASM



Spitfire Mk.I, II and Vs of various sub variants, as well as Hurricane Mk.I and Mk.IIs. The most powerful were of course the new Spitfire Mk.Vs, introduced into service at roughly the same time as the Bf 109F-2 and F-4. The known performance parameters of the Spitfire Mk.V are as follows:

The speed of the new Spitfire Mk.V in March 1941 was 595.5 km/h (370mph) at 5,944 m (19,500 ft). But even with the Spitfire, performance data is hard to pin down exactly. In six different Spitfires tested at the A & A.E.E. between March 1942 and August 1946, the top speed achieved at 5,486 m (18,000 ft) varied between 555 km/h to 571 km/h (345mph to 355mph). The climb to 4,877 m (16,000 ft) was recorded as between 4.05 min and 6.4 min, and 6,096 m (20,000 ft) was between 5.6 min and 10.25 min. The best performances was attributed to Spitfire Mk.Vb W3228 with a Merlin 50M engine in May 1943, and the worst by Spitfire F.Mk.Vc AB488 with Merlin 46 engine.

For the Spitfire Mk.II, top speed was 570 km/h (355mph) at 5,487 m (18,000 ft), top speed at 6,096 m (20,000 ft) was 563 km/h (350mph), and climb to 6,096 m (20,000 ft) was between 7 minutes and 9.8 minutes depending on the engine type. I don't want to burden you with a flood of data, but in general, according to known performance data, the Bf 109F-4, like the F-2, surpassed its opponents. However, the Spitfire Mk.V was able to keep up with the Bf 109F-4 in climb rate, but in speed, it lagged behind at all altitudes. Compared to the less powerful Bf 109F-2, it, of course, fared better. The Hurricanes, with their top speed of 504 km/h (313mph) at 6,096 m (20,000ft) and a climb to the same height of between 7.5 min and 8.2 min, were already significantly behind the Messerschmitts and were not equal term opponents for them.

### Africa

In Africa, in addition to the aforementioned adversarial Spitfires and Hurricanes, the Bf 109F-4 faced American P-40 Warhawk fighters of various versions and the P-39 Airacobra.

The P-40B/C (Tomahawk Mk.IIa) had a maximum ground speed of 445 km/h (277mph), 544 km/h (340mph) at 5,000 m (16,400ft) and climbed to this altitude in 7 minutes.

The P-40E (Kittyhawk Mk.Ia) had a maximum speed of 575 km/h (360mph) at 4,750 m (15,600ft) and climbed to 5,000 m (16,400ft) in 8.1 minutes. The P-39D Airacobra had a maximum speed of 576 km/h (360mph) at 4,572 m (15,000 ft), climbing to 5,000 m (16,400ft) in 6.4 minutes.

### The Eastern Front – The Soviet Union

On the Eastern Front, the superiority of the Bf 109F over Soviet fighters is indisputable. At the time of the German attack, a large part of the Soviet air force consisted of Polikarpov I-16,



Messerschmitts Bf 109 F from II./JG 54 "Grünherz" with camouflage characteristic of this unit in a picture taken in summer 1941 at the beginning of the campaign in the East

Photo: SDASM

I-15, I-152 and I-153 fighters, which were already significantly outdated. Newer designs in the form of the Yak-1, LaGG-3 and at higher altitudes the higher powered MiG-3 were rare in the first months and their losses were heavy during that period of the war.

I will present the performance parameters of two fighters that were produced in large series in the later period of the war by the Soviets, the Yak-1 and LaGG-3.

The Yak-1 reached a top speed of 586 km/h (364mph) at 5,000 m (16,400ft), and 490 km/h (305mph) at sea level, and climbed to the 16,400ft level in 5.7 minutes. It was more or less comparable against to the Bf 109F-2, but obviously would find its life more difficult against the F-4 This is similar to the comparisons with the Mk.V Spitfires, which, in the latter stages of the war, also served in the Soviet Air Force, along with the other British and American types mentioned above.

The LaGG-3 fared significantly worse with a speed of 549 km/h (340mph) at 5,000 m (16,400m) and 457 km/h (284mph) at sea level, and would reach that 16,400ft level

in 8.6 minutes. However, like the Yak-1, it was produced in large quantities over the first half of the war and, despite also suffering heavy losses, was a tenacious opponent. Both types in their successive versions were opponents of various versions of the Bf 109 until the end of the war, and in their peak versions of the La-7 and Yak-3 were at least worthy opponents. It must be added that ultimately, these opponents were victorious, as were the Mk.IX Spitfires on the Western Front and in the Mediterranean.

### Source:

Harald Helmut Vogt: Messerschmitt Bf 109 – Einsatzmaschinen-Das Nachschlachgwerk  
Harald Helmut Vogt: Messerschmitt Bf 109 – Versuchs und Erprobungsträger und der Weg zur Serienproduktion

Jochen Prien/Peter Rodeike: Messerschmitt Bf 109 F, G & K Series

Michael Baumgartl: Das jagdfugzeug Messerschmitt Bf 109: Technik, Eigenschaften, Leistung, Stückzahlen, Bewährung  
Marek J. Murawski, Asen Atanasov: Messerschmitt Bf 109 F



This image was taken in late 1942 at the El Daba base scrap yard. In the foreground on the right are the fuselages of Bf 109 Fs from II. and III./JG 27.

Photo: SDASM



**17.6.  
2023**



# MODELBRANÍ

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Continued from issue 04/2023

Text: Jan Bobek

*This image was taken in 1943 during a Kōkūtai 802 patrol in the central Pacific. Note the paint wear on both machines. The 60kg bomb armament was standard for patrol flights against enemy surface vessels and submarines.*

### Kamikawa Maru

In response to the Guadalcanal landing and lacking airfields between that island and the base at Rabaul, the IJN decided to establish a seaplane command in the area from August 28, 1942. It was given the name R-Hōmen Kōkū Butai (abbreviated R-Butai), R being the code name for Rabaul, i.e., R-Area Air Force. It was headed by Rear Admiral Takatsugu Jōjima, who had previously commanded several carriers, the last being Shōkaku. In late June 1942, he became commander of the 11th Seaplane Tender Division, which was the operational part of the newly formed R-Butai.

The seaplane tenders Chitose (with Pete and Jake planes), Sanyo Maru (Petes and Jakes), and Sanuki Maru (Petes) were the first ones under Jōjima's command. During September, they were joined by Kamikawa Maru (Rufes and Petes) and Kunikawa Maru (Petes). These units were tasked with defending the anchorages at Shortland and Rekata Bay off Guadalcanal. The Americans consistently attacked Rekata Bay, where the Japanese were trying to establish a base. Its supplies were provided by the seaplane tenders Akitsushima, Chitose and Nisshin. The seaplanes from R-Butai could not stay overnight in Rekata Bay for safety reasons, so crews flew to this location from Shortland in the early morning hours.

The Kamikawa Maru was completed as a cargo vessel in 1936. The Imperial Navy took her over in 1937 and completed her conversion to a seaplane tender two years later. After deployment in war against China she took part

in campaigns in the Malay Peninsula, Borneo and Java. In May 1942, Kamikawa Maru participated in the Japanese landing at Tulagi, took part in Battle of the Coral Sea, and supported the landings in the Aleutians.

In August 1942, the Kamikawa Maru air unit was joined by a fighter Buntai with Rufe aircraft under the command of Lt. Jirō Ōno, who had commanded a seaplane unit aboard the cruiser Chikuma during the attack on Pearl Harbor. Commanding the Kamikawa Maru was Captain Torahachi Shinoda, who had held that position since September 1941. The primary mission of the Rufe pilots was base defense and reconnaissance. However, they also took on the role of ground attack aircraft during the fighting on Guadalcanal.

From the Shortland base near Bougainville, the Kamikawa Maru's Rufe seaplanes operated from September 4, 1942, that very day their pilots

already engaged a reconnaissance bomber B-17 and reported its damage.

The first victory was achieved by two pilots on September 13. The two Rufes piloted by CPO Jirō Kawai and W.O. Makio Kawamura took off from Rekata and were tasked with determining if Henderson airfield on Guadalcanal was back in Japanese hands. Although they did not spot Japanese forces at the base, they encountered a lone SBD Dauntless from VMSB-231. They managed to shoot it down and then attacked ground targets. Both Americans were killed, one of them, gunner Cpl. Horace B. Thomas who had survived the Battle of Midway at VMSB-241. The tables turned the next day when, in the early morning hours, three Rufes under the command of Lt.(jg) Masashi Kawashima conducted another reconnaissance over Henderson Field. However, they encountered a force of seven Wildcats from VF-5 under the command of



*Kamikawa Maru anchored off Amoy (Xiamen), China in July 1939, with a deck load of Kawanishi E7K and Nakajima E8N float planes. The Kamikawa Maru was completed in 1936 as an ocean liner but was converted to a seaplane tender a year later and was combat deployed in the aggression against China until the spring of 1941. At the start of the fighting in the Pacific, her air unit was equipped with E13A1 Jake and F1M2 Pete seaplanes. She was sunk by USS Scamp on May 29, 1943 approximately 250 miles north-west of Kavieng.*



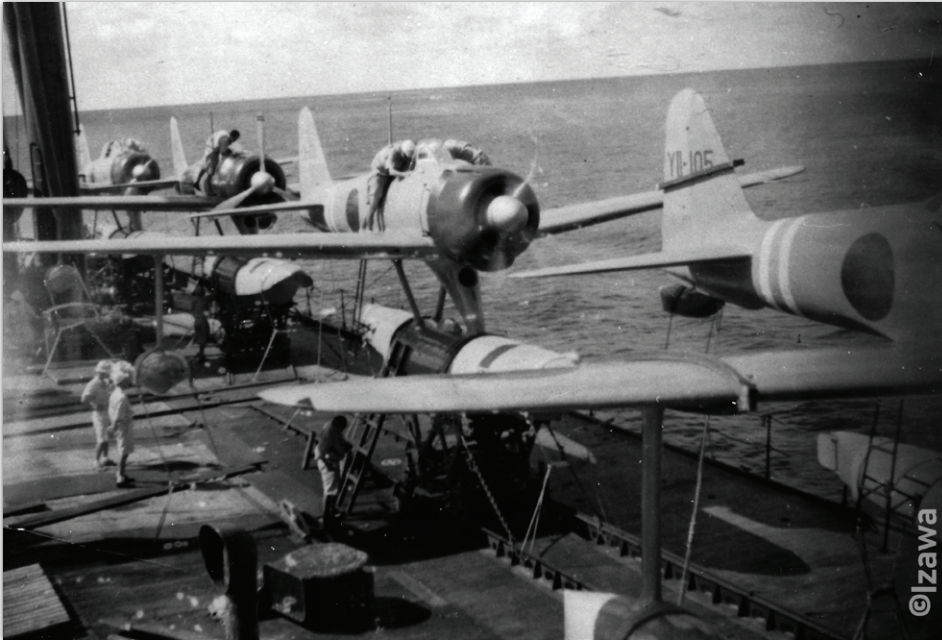


Photo: ©Izawa

*Kamikawa Maru fighter planes on her cruise in the summer of 1942 during a transport to the Solomon Islands area. Of note on the YII-101 is the number on the front of the main float pylon and the convex cover on the top of the float, which covered part of the tank purge system located in the float.*

Lt. Cdr. Simpler. In combat, which ended low over the terrain, the high maneuverability and stability of the Rufe impressed American opponents. However all Japanese were shot down and killed. One of them was gunned while on a parachute by Wildcat pilot.

During the afternoon of the same day, twenty observation floatplanes escorted by two Rufe arrived at Guadalcanal. Their crews were tasked with attacking ground targets with 60kg bombs. The attack took place at dusk and was opposed by five Wildcats from VMF-224 and six machines from VF-5.

The Rufe seaplanes, piloted by Ôno and P02c Matsutarô Ômura, clashed with Stover and Byler of VF-5. In a dogfight that included frontal

attacks, Stover managed to shoot down Ômura. Ôno escaped the fight and claimed one of the Wildcats as downed.

The seaplane bases in Shortland area were attacked in the early hours of 5 October by Avengers and Wildcats from the USS Hornet (CV-8). There was very poor visibility over the target, and coincidentally two Petes from Sanuki Maru and two Rufes as their escort took off to join seven more floatplanes already patrolling. They were tasked to cover the destroyers Oyashio, Kuroshio and Hayashio on their voyage to Guadalcanal. In sudden defense of their own base, they were credited with shooting down five fighter planes. An even more dramatic encounter occurred on

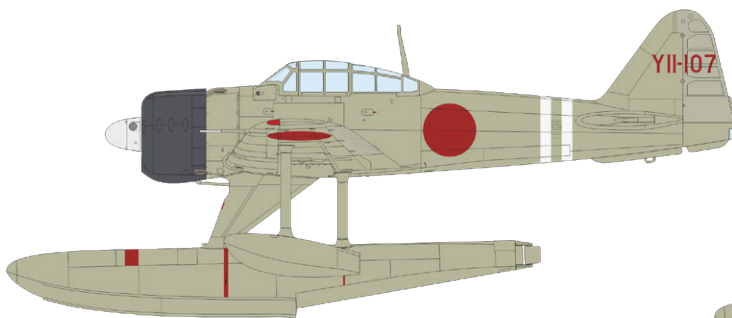
October 10, 1942 during an attack on the Tokyo Express (a convoy of two light cruisers and four destroyers) including the light cruiser Tatsuta, on board of which was Lt.Gen. Hyakutake. Two Rufe seaplanes from Kamikawa Maru and two Pete biplanes from Sanuki Maru were deployed to cover them.

The Americans sent fifteen USMC Dauntlesses and six USMC Avengers against the vessels, accompanied by eight Airacobras and fifteen Wildcats.

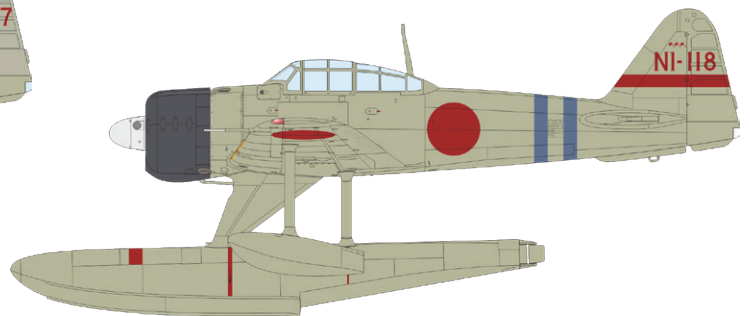
The chunky gray-blue fighter planes of VMF-212, 223, and 224 were mistaken for bombers by the Japanese aviators, who attacked the group of "bombers" from above. The surprise of the Americans must have been no small one when they were attacked by two biplanes and two float Zeros, as the Rufe was then referred to by its enemies.

All the Japanese machines were shot down. A total of seven claims were made for the destruction of the two Pete aircraft, indicating the ferocity of the fight. While 2nd Lt. Gutt, Capt. Marvin and Maj. Smith of VMF-223 each claimed a Rufe shot down. They killed Seaman 1st Class Maruyama (in YII-107) and CPO Kawai (YII-104). Two American aircraft were shot down by artillery fire from the decks of the ships, and the vessels were not hit. Maruyama and Kawai were among the most experienced seaplane pilots in the area. In September 1942, their aircraft were cited in a commendation by the Commander of the Combined Fleet.

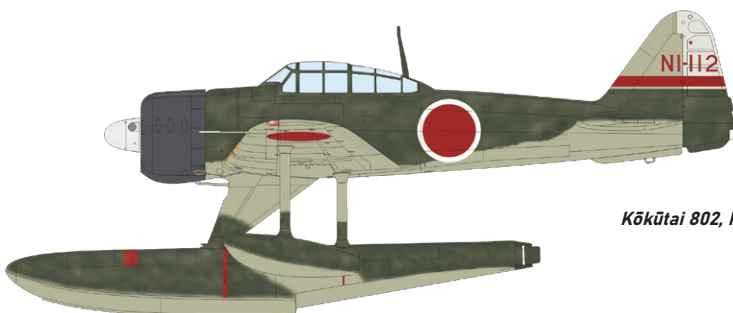
The Kamikawa Maru's fighter Buntai pilots scored 14 victories and had flown a total of 360 combat sorties in 211 missions by November 7, 1942. But nine of them were killed. After that date, remaining fighter planes and pilots were taken over by Kōkūtai 802.



*Seaman 1st class, Takio Maruyama, aviation unit of seaplane tender Kamikawa Maru, Shortland, September 1942*



*c/n 15, Lt. (jg) Keizō Yamazaki, Kōkūtai 802, Shortland Island, February 1943*



*Kōkūtai 802, Faisi-Poporang base, Shortland Islands, February 1943*





U.S. Marine Corps F4F-4 Wildcats of VMF-121 at Henderson Field, Guadalcanal at the end of 1942. Note centerline drop tank on the first F4F and the P-38F Lightnings in the background.



Photo: Fold3

Lt. Murray "Jim" Shubin of the 339th FS poses in front of his P-38G-13 (43-2242) on Guadalcanal. In all, he scored eleven certain victories and one probable victory. He was the only P-38 pilot to achieve five kills in a single combat flight in the Pacific. His unit frequently encountered Rufe fighter seaplanes from Kōkūtai 802 and did not always emerge victorious from the engagements, especially when engaged in maneuver combat. Shubin achieved his first victory on February 2, 1943 over Shortland in a dogfight with Rufe. In an attack from above, he shot down a machine of a P02c Kiyoshi Akizuki, who bailed out from the burning seaplane.

### The fight for the Solomon Islands

In mid-October 1942, R-Butai was reinforced by nine Rufes under the command of Lieutenant Toshio Igarashi of the 14th Kōkūtai. Original unit with this designation was armed with Zeros and fought against the Chinese armed forces until the fall of 1940. In April 1942, the 14th Kōkūtai was newly created as seaplanes unit. From Rabaul it soon moved to Shortland and later even to Rekata.

The unit encountered B-17s on October 13 and on following two days, losing one of its officers in the process. It achieved its first victory on October 17 when four Rufes downed a Dauntless from VS-71. The unit had its first encounter with

Wildcats on 30 October, when three Rufes from the 14th Kōkūtai and one Rufe from the Kamikawa Maru engaged US Marines with two SBDs from VMO-251 and six Wildcats from VMF-212 in an early morning raid on the Japanese base at Rekata. The Americans claimed three Float Zeros and two Float Biplanes as shot down, which was not far from the truth. In this combat Capt. Jack E. Conger scored his 9th and 10th victory. Two Pete machines from Sanyo Maru and one from Chitose were destroyed. The formation of four Rufes was led by 14. Kōkūtai's Lt. Hideo Goto, but his machine was hit on takeoff and he managed to land later. The next Rufe to take off was not so lucky, with Teruo Watanabe

of Kamikawa Maru perishing in the flames. In early November 1942, the 14th Kōkūtai was redesignated Kōkūtai 802 and its fighter Buntai was led by Lt. Hideo Goto. This officer, with four of his pilots, got into a large-scale fight on November 7 when, together with four Petes from Kamikawa Maru, they were tasked to provide cover for destroyers enroute to Guadalcanal. Dauntless crews were also headed toward these vessels, escorted by Wildcats from VMF-121, 112 and Airacobras from the 347th FG. In this engagement, Goto and his colleagues were shot down and none of them survived. One Pete also fell victim to the Americans, who lost one Dauntless and three Wildcats, including the machine piloted by the legendary Joe Foss, brought down by the rear gunner of a Pete biplane.

During December, the two remaining Rufe pilots of Kōkūtai 802 were still conducting patrols while preparations were underway in Japan to completely rebuild this unit. During turn of the year and the first half of February, their unit, facing frequent raids on Bougainville, began encountering Lightnings and Warhawks.

For instance, such a clash occurred on January 5, 1943, during the raid of five B-17 from the 26th BS escorted by six P-38 from the 339th FS, 347th FG under the command of Maj. John W. Mitchell. Their targets were Kahili airfield on Bougainville and the port of Tonolei. They were attacked by six Zeros from Kōkūtai 204, two Rufe aircraft from Kōkūtai 802, and several Pete biplanes.

At the controls of the floatplane fighters were P01c Eiji Matsuyama and his wingman Superior Flyer Shinkichi Ōshima. Early in the fight, Matsuyama, in cooperation with one Pete seaplane crew, hit a P-38 piloted by 1st



FIM Pete aircraft from Kunikawa Maru and Rufe seaplanes at Poporang base in early 1943. Some Rufe aircraft had already received a coat of dark green paint on the upper surfaces. To the far right is Yamazaki's NI-118, note that it does not have the convex cover on the top of the main float that it apparently originally had.





A Rufe seaplane at an island base is strafed and set afire by PB4Y-1 Bomber of U.S. Navy Bombing Squadron 106, in the Solomons area, 1943.

Photo: ©Izawa



Kōkūtai 802 pilots in the Shortland Islands during off-duty time.



One of the tents that were used to prepare for Kōkūtai 802's combat activities at Shortland.

Photo: ©Izawa

Captured H8K Emily and A6M2-N Rufe seaplanes at Kwajalein Atoll in early 1944.



Photo: US Naval History and Heritage Command

Lt. Ronald W. Hilken. Lt. Holmes and Lt. Norris tried to save him, but Hilken was last seen descending toward Vella Lavella Island. Matsuyama then attacked a Lightning piloted by 1st Lt. Wallace L. Dinne, Jr., igniting his left engine with cannon fire, the machine went into a spin and that pilot also remains missing.

In the encounter, Ōshima was shot down, bailed out and rescued by the crew of seaplane Pete of Sanyo Maru. He was apparently shot down by Maj. Mitchell, who was the only one to claim the Float Zero. This is the same Mitchell who would lead the strike group of four airmen, including the aforementioned Lt. Holmes, in the attack on the bomber of Adm. Yamamoto and its escort. In mid-January 1943, 15 new Rufes and 15 pilots arrived at Shortland to reinforce the last remaining Rufe of the original unit. Reinforcements were under the command of Lt.(jg) Takeo Yokoyama, who had previously served as one of the officers of the Kamikawa Maru. His deputy was Lt.(jg) Keizō Yamazaki. Kōkūtai 802 did not fare badly in these engagements. Their most notable success was their part in the so-called Valentine's Day Massacre. This was the name given to the February 14, 1943, by American airmen after the attack on vessels in the Buin and Shortland area.

Nine PB4Y-1 Liberator bombers from VB-101 flew to the target, escorted by ten P-38Gs from the 347th FG and twelve F4U Corsairs from VMF-124. Thanks to Japanese patrols on the islands between Bougainville and Guadalcanal, the Japanese naval fighters got airborne in time. Waiting for the attackers were 13 Zeros from Kōkūtai 204, 18 Zeros

from Kōkūtai 252, and Yokoyama with 11 Rufes. The Americans damaged two freighters but came under strong flak fire and faced attacks from well-prepared Japanese fighters. The Japanese lost only one Zero and two others were damaged. The Americans, however, lost two Liberators, four Lightnings and two Corsairs in fierce fighting. Yokoyama's unit claimed two bombers and one single-engine fighter.

#### To the coast of Australia

In mid-1942, the 36th Kōkūtai was formed in Balikpapan, Borneo. This unit was armed with Pete, Jake and Mavis seaplanes. In November

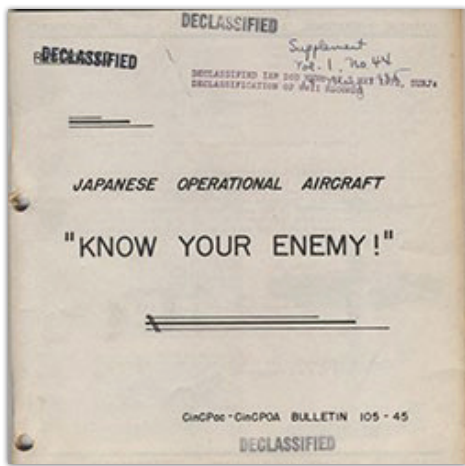
1942, its designation was changed to Kōkūtai 934, and in late February 1943 a fighter unit was formed. The unit operated first from Ambon and later from Maikoor, Indonesia. While defending its own bases, however, it also fought with four-engine B-24 Liberator bombers. Its primary task, apart from defending own bases, was patrolling against Allied vessels. Patrols usually consisted of one Jake and one Rufe aircraft as fighter escort. The area of operations extended as far as the north-west coast of Australia, so Japanese airmen would face not only Hudsons and Beaufighters, but also Spitfires. Leader of fighter unit of Kōkūtai 934, Lt.



The NI-118 was the fifth Rufe seaplane produced, so it was a rebuilt machine from the A6M2 Model 21 carrier fighter produced by Mitsubishi during its overhaul and rebuild by Nakajima. Pictured here in early 1943, after a year of service, this vintage aircraft shows considerable signs of paint wear. It is possible that the darker areas on the stabilizer are made up of reddish-brown primer.

Photo: ©Izawa



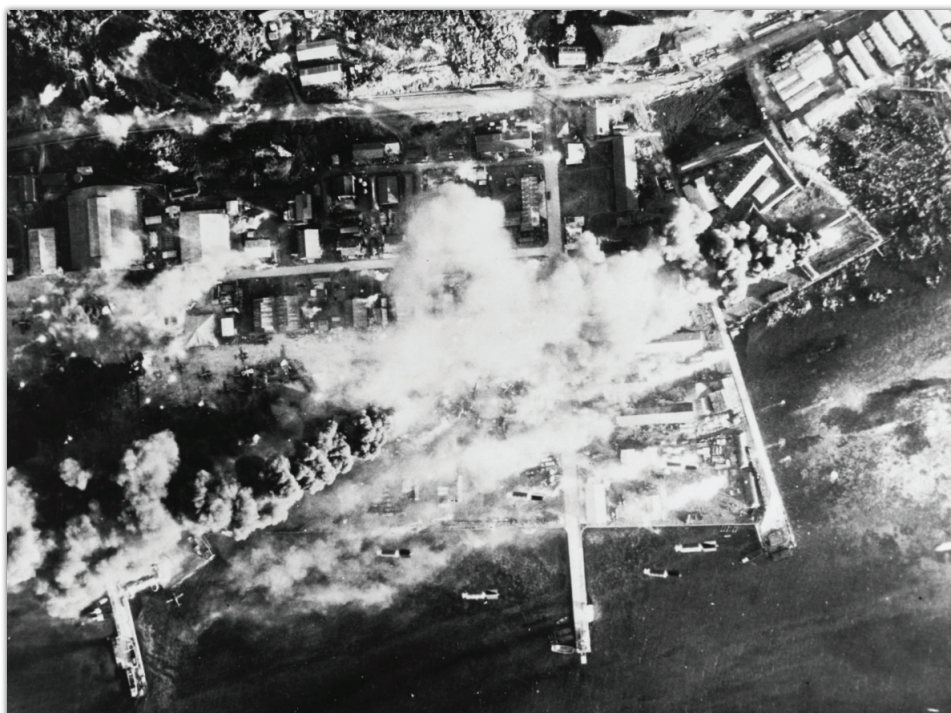


Part of the US enemy aircraft identification manual, dedicated to the Rufe. It was created using captured photographs.

Toshiharu Ikeda, fought against Spitfires on August 10, 1943 while escorting the crew of E13A Jake which belonged to his parent unit. On the route of the patrol flight, they reached a point about 50 miles off the Australian coast. An Australian radar operator sent a pair of Spitfires from No. 452 Sqn RAAF against them, with F/O "Fred" Young and P/O "Bill" Coombes at the controls. Early in the engagement, the Japanese first surprised their opponents with the maneuverability of their machines. However, Young eventually managed to shoot down the Jake which crashed into the water in flames. Coombes attacked Ikeda, hitting his Rufe in



An image of the wreck of the seaplane Rufe from Kōkūtai 802 taken in 1944 at Emidj Island, Juluit Atoll, in the Marshall Islands. The reddish-brown base paint is visible on the aircraft.



Japanese seaplane base on Dublon Island under bombing attack on the first day of raids, February 17, 1944. Note bombs falling in lower center, and variety of Japanese planes in the water and on the ground at left. This was the base used by Rufe seaplanes of Kōkūtai 902.

the central float and fuselage. Although the float tank caught fire, Ikeda managed to return to base. He was not injured, but his machine sank on landing. After the fight, he claimed one Spitfire as shot down.

By the end of 1943 the unit had achieved 21 victories with the loss of four pilots. In early 1944 it also deployed new NIK Rex seaplanes in combat, but in March its fighter unit was disbanded.

#### Pacific and Japan

In March 1943, the fighter unit of the Kōkūtai 802 led by Lt.(jg) Yamazaki moved from Shortland to

Jaluit Island in the Central Pacific. In October it was integrated into Kōkūtai 902 based on Truk Atoll. The base was often attacked by B-24s, but the massive raid (Operation Hailstone) by American carrier planes on Truk in the early hours of February 17, 1944, had fatal consequences. The Japanese radar operators considered the incoming formation to be their own bombers, and Japanese naval land-based and seaplane fighters only took off during the bombardment. The Japanese lost 81 aircraft on the ground and 31 were shot down. The American airmen were impressed by the raid as if it were a Hollywood movie. Kōkūtai 902 sent



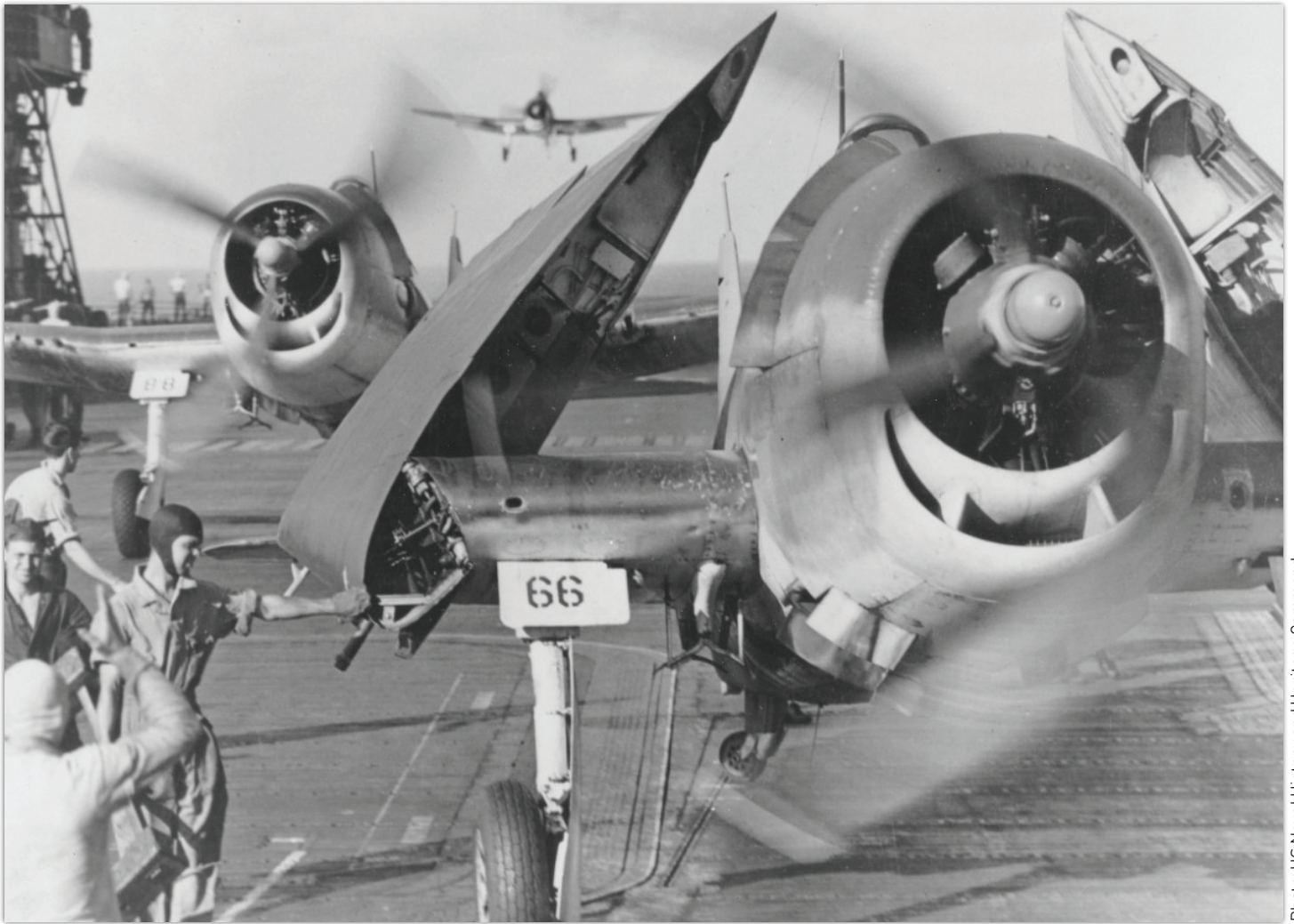


Photo: US Naval History and Heritage Command

F6F-3 Hellcat fighters landing on USS Enterprise (CV-6) after strikes on the Japanese base at Truk, 17-18 February 1944. Flight deck crewmen are folding planes' wings and guiding them forward to the parking area.

eight aircraft and claimed five victories. They clashed successively with Hellcat pilots from VF-5, 6, 9 and 10. However, four Japanese pilots were killed, and three others made emergency landings or parachuted. One of the pilots

took off a second time, achieving one victory, but his machine was hit and had to make an emergency landing. In early March 1944, the fighter unit of Kōkūtai 902 was disbanded. Sasebo Kōkūtai performing patrol duties in

Western Japan had its own Rufe unit. In May 1944, part of Sasebo Kōkūtai including Rufes led by Lt. Teijirō Yonemasu, moved to Chichijima Island for defense against the US Navy. They got into combat very early on July 4 and of nine Rufes, seven were shot down and four pilots were killed. Three victories, including two probables, were scored by the CPO Teruyuki Naoi. Their opponents were the night fighter Hellcats of VF(N)-76. Lt(jg) John William Dear, Jr. claimed three downed Rufes and Lt(jg) Fred LeRoy Dungan even four.

Towards the end of 1944, some airmen were transferred to land-based naval fighter units and the rest of the Sasebo Kōkūtai was incorporated into the anti-submarine Kōkūtai 951.

In Japan, Rufe aircraft served with several units tasked with training, and their assignments later expanded to include patrol operations. Training on Rufe seaplanes was usually a precursor to the more powerful NIK Rex fighter.

In April 1943, Sukumo Kōkūtai was formed, consisting of twelve fighter and twelve observation seaplanes. It used the base of the same name in Kochi Prefecture. In early 1944 its status changed to a combat unit, redesignated



Photo: ©Izawa

©Izawa

Kōkūtai 934 at Ambon Base used at least two machines with lightning bolt painting on the fuselage. Its design was different on both aircraft and was apparently painted white. While the seaplane with the lightning bolt and marking 934-116 is captured in several photographs at the shore or during taxiing, the second machine (in this photograph) is not photographed in a way that shows its tail code. In the past, it has been presented by some decal makers with, for example, the code 934-06, but this does not correspond to the marking system of the aircraft of this unit, which are captured in the newly discovered photographs.



to Kōkūtai 453 and moved to Ibusuki Base in Kagoshima Prefecture. From February 20 it conducted anti-submarine patrols, but on that date its fighter section was disbanded.

Similarly, the Kashima Kōkūtai and Katori Kōkūtai training units were based in Chiba Prefecture. Their aircraft, including the Rufes, sporadically came into conflict with American aircraft.

Among the pure training units that also used some Rufes was Kitaura Kōkūtai. In its case, several Rufe were reserved for instructors for the purpose of practice flights and maintaining skills in maneuver combat. One of them, CPO Tsuji, was killed in a dogfight with a Hellcat pilot on February 17, 1945.

One of the seaplane units that participated in Kamikaze missions at the end of the war was the training unit Takuma Kōkūtai. It was established in mid-1943 and its main armament was the E7K Alf and H8K Emily seaplanes. Rufe fighters are documented with this unit as early as 1943.

The Nakajima A6M2-N Rufe fighter seaplanes were already outperformed by their opponents at the time of their introduction into service. But like the A6M2 Zero Type 21, from which their design was based, the Rufe seaplanes remained

in first-line service until the end of the war. Sadly, no complete example of this beautiful floatplane survives to this day.

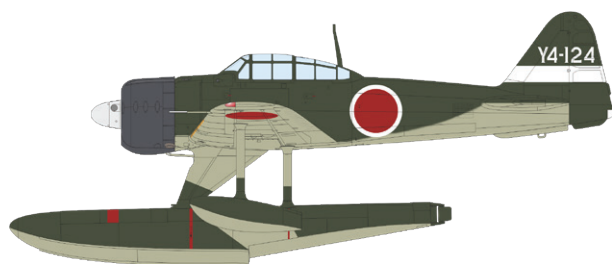
**I was kindly assisted in the preparation of this article by Messrs Yasuho Izawa, Ota Jírovec, Voytek Kubacki, Nick Millman, Noah Muranishi and the team at Scale Aviation magazine, Ryan Toews and Y. Yoshino. I would like to express my thanks for their support.**

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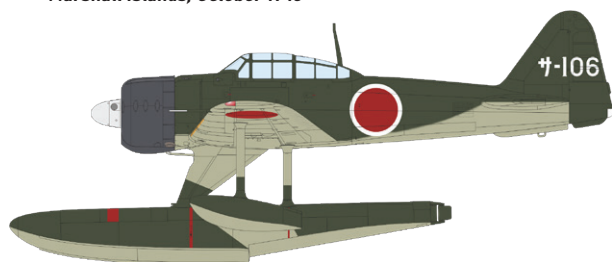
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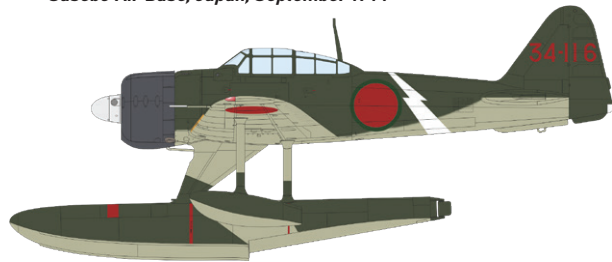
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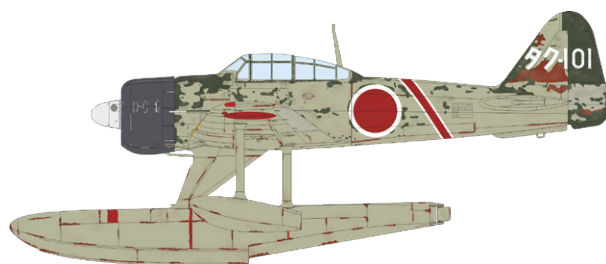
**Kōkūtai 802, Emidj Island, Jaluit Atoll, Marshall Islands, October 1943**



**Ensign Jin'ichirō Ozawa, Sasebo Kōkūtai, Sasebo Air Base, Japan, September 1944**

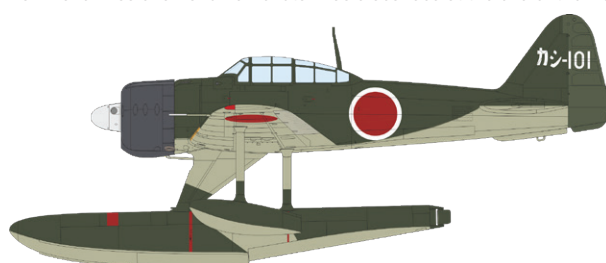


**Kōkūtai 934, Ambon island, Moluku Islands, March 1944**



**Takuma Kōkūtai, Takuma base, Japan, 1944**

This aircraft was originally finished with grey paint on all surfaces. Later, at the unit, it was given a dark green paint job on the upper surfaces. By the time it was in service with Takuma Kōkūtai, the green paint was badly worn, with reddish-brown primer and metal surfaces visible in some areas. The stripe on the fuselage was probably the designation of the aircraft flown by leader of fighter unit. Takuma Kōkūtai was established in mid-1943 to train seaplane crews and it included a fighter unit with Rufe aircraft which was also tasked with training, including dogfight practicing. However, the command envisaged the eventual deployment of Rufe aircraft by this unit for the air defense of Japan. A photograph of a Rufe seaplane from the Takuma Kōkūtai exists, showing the mount of Ensign Kyoshi Suga armed with 30 kg bombs for use against B-29 bombers, but there is no evidence that such a combat deployment occurred. In 1945, part of the Takuma Kōkūtai was deployed on Kamikaze missions. Takuma Kōkūtai was disbanded at the end of the war.



**Kashima Kōkūtai, Kashima base, Japan, 1944**

This late production aircraft was finished in a factory applied dark green paint. Kashima Kōkūtai was established in 1938 as a training unit for seaplane crews. Her fighter unit, armed with Rufe floatplanes, was deployed several times to fight alongside Katori Kōkūtai airmen in the Home Defence and achieved several fighter and bomber kills. It was probably with this unit that the Hellcats of VBF-12 from USS Saratoga (CV-3) came into conflict around Kashima on February 16, 1945 and the Hellcats of VF-29 from USS Cabot (CVL-28) on March 18. In the first mentioned combat, the American fighters reported five Rufe kills and in the latter encounter claimed four victories. In May 1945, the Kashima Kōkūtai training section was cancelled, and a number of aircraft and crews were deployed on Kamikaze missions. Kashima Kōkūtai was disbanded at the end of the war.



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# Air war over Ukraine

## Migs fly East!



Text: Miro Barič

*Mig-29UBS bort number 5304 was also handed over to Ukraine. The picture was taken at SIAF 2019.*

**The war in Ukraine carried over to the next year. From March 1 to March 31, period we cover in this episode, the most important event of the air war were reinforcements in the form of Mig-29 fighter from Poland and Slovak Republic and an incident during which the American MQ-9 Reaper drone and Russian Su-27 fighter collided in the international airspace over the Black Sea. Let look closer at both events.**

**Photo: Ukrainian Armed Forces, social media and other public sources**

It is admirable how long the Ukrainian defenders resist the Russian "three-day" special operation. Even the next large-scale counterattack is being prepared of course preceded by a large amount of the disinformation to confuse the enemy. It is certain that the Russian attempt at the winter offensive vanished. In Bakhmut the Russians make slow progress but it has been eight months since the operation to capture it started and 58th largest city in Ukraine still resists. The Russian advance at Vuhledar gradually stopped and the occupier's efforts on Svatovo-Kremnina line are not bearing fruits. There were hard time for Avdiyivka though. The Russians took advantage of the fact that the city sticks out of the frontline, and they control both right and left wings. The Ukrainian AA defense has to operate further from the front and the Russians could achieve the local air superiority. The coordinated deployment of the electronic warfare, artillery and ground-air missiles to suppress the Ukrainian AA defense creates

a small window through which the Russian bombers can attack unmolested. Russian Mig-31 and Su-35 armed with air-to-air missiles engage the Ukrainian fighters equipped with similar rockets but of shorter range. Price paid is the increased number of the Russian ground radars and jammers destroyed. Those are not only hit by HARM rockets launched from the Ukrainian aircraft but due to the vicinity of the frontline by the Ukrainian artillery as well.

### American drone vs. Russian fighter

On Tuesday, March 14, the most serious incident occurred between the Russian and Western armed forces since the outbreak of war in Ukraine. Two Su-27 fighters attacked the American MQ-9 Reaper drone in the international airspace above the Black Sea and caused the drone's crash. It was maneuvering approximately 60 km south-west from the occupied Crimea. The whole incident lasted 30-40 minutes. According to the American statements the

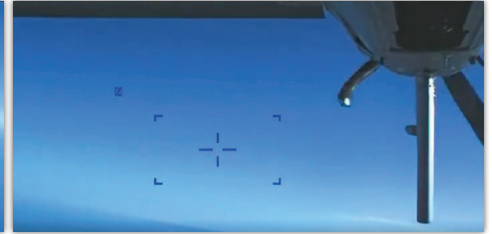
pair of Su-27 fighters approached the drone as many as 19 times. During the last three or four passes they splashed it with fuel in an effort to blind or damage the drone. In the end one of the fighters crashed into it from behind and destroyed its propeller. The drone could not sustain the flight and an operator guided it into the water. Washington called upon the Russian ambassador who, in the line with the Russian propaganda, claimed that it was an American provocation. Moscow maintained that Russia is not responsible, there was no physical contact made and MQ-9 Reaper crashed due to the abrupt maneuvers. It's interesting that the ambassador stressed out several times that the Russian fighters had not deployed any of the on-board weapons, regardless no one made such an accusation.

Two days after an incident Pentagon published a video captured by drone's camera which again proved the Russian lies. The only aircraft maneuvering abruptly were the Russian fighters.





Raid and fuel released from the Russian Su-27 fighter onto an American MQ-9 Reaper drone on March 14. No retaliation this time.



The damage of the drone's propeller blade is clearly visible.

Until the impact Reaper maintained the stable course. First it could be seen that the Russian fighter rushed in from behind and below, flew closely above the drone and released the fuel at the same time. Drone however maintained its altitude and heading. Next the Russian fighter performed an attack while releasing the fuel. This time the pilot miscalculated. He started to disengage too late, and Su-27 closed in too much and hit the drone. At the moment of impact, the communication was lost briefly. Once re-established one of the propeller blades was deformed and cut off. That was the reason Reaper could not sustain the flight and the operators guided it into the sea. Despite the fact that the close approaches were intended, the USA qualified the collision as an accident and were not interested in the conflict escalation. Even though the Russians lied that there had not been any collision, the fighter pilot was awarded for destroying the American drone, despite the fact that due to his inability and idiotic behavior he jeopardized himself and his aircraft in the first place.

Only after this incident the details of other previous encounters between western and Russian aircraft appeared, which only by sheer luck did not result in a disaster. On September 29, 2022, very dangerous situation took place when two armed Su-27 fighters for approximately 90 minutes shadowed the British RC-135W Rivet Joint reconnaissance aircraft in the international airspace above the Black Sea. One of the fighters released the air-to-air missile which luckily missed the British plane. Consequently, the western aircraft started to fly escorted missions. Despite this fact, on December 30, 2022, another Rivet Joint escorted by two Typhoons fighters was closely shadowed by the Russian fighters which closed in to barely 30 meters.

### Important reinforcements

Despite all those incidents the Allied reconnaissance flights above the Black Sea (Baltic Sea as well) continue. The military supplies continue as well and during this reporting period culminated by employment of the modern Leopard 2 and Challenger 2 MBTs together with trained crews to Ukraine and also with public offer to provide the supersonic fighters. Already in April 2022, the Ukrainians received 21 Mig-29s. However, these were non-airworthy aircraft which had been acquired by the USA in Moldova and were offered for the spare parts at the beginning of the invasion. That helped to repair several grounded Ukrainian AF fighters. The Ukrainians also received 14

Su-25 fighter-bombers from Bulgaria but this delivery was provided by the third party and not publicized at that time.

Both Poland and Slovakia spoke about possible Mig-29 fighter deliveries to Ukraine during the first days of the Russian invasion in 2022. At that time, this matter sadly ended in the political chaos and effort to avoid the direct supply. The discussion was seriously revisited only this year. Poland and Slovak Republic coordinated their actions this time. On March 16, Poland was the first to announce four airworthy Mig-29 delivery to Ukraine with more to follow. Slovakia joined the suite the following day.

### Polish Migs

During 1989-1990, Polish AF bought 12 Mig-29s from the Soviet Union. There were nine single-seaters (9.12 version) and three two-seaters. Consequently, in 1995 10 aircraft were sourced

from the Czech Republic (9 single-seaters and one two-seater) as a barter for 11 PZL W-3 Sokol helicopters. In 2002 Poland bought 22 aircraft from Germany for a symbolic price one euro per aircraft. There were airplanes originally flown by East Germany AF. Four of them were two-seaters, rest of them single seaters. Due to the fact that these airplanes had served for quite some time, only 14 of them, those in the best condition, were assigned to the regular duty. In the beginning of the year, Polish AF had 28-29 Mig-29s on the strength. They decided to donate 14 of them to Ukraine. Four fighters flew over to Ukraine in March, four of them were in the process of transfer during March and April and another six were being prepared for the transfer in the coming weeks. Poland announced that the remaining Migs would be delivered as well if necessary. It was clarified later that these remaining aircraft were in fact of German origin.



Anti-aircraft tank Gepard in the Ukrainian service. Except of the small number 52 painted on the armor the only other markings are the kills marked on the right side of the turret – three Shahed-136 drones and two cruise missiles.



Therefore, Poland requested Germany's approval for the transaction and German government promptly approved it. At this time, it is quite possible that another batch of Polish Migs are being prepared for the handover.

### Slovak Migs

After the split of Czechoslovakia in 1993, Slovak AF received nine Mig-29A (9.12) single-seaters and one Mig-20UN two-seater. As a compensation for the trade deficit with Russia, further 12 single-seaters and two two-seaters were delivered from Russia to Slovakia. During 2005-2006 Aircraft Repair Facility in Trenčín performed a partial upgrade of 10 single-seaters to AS version and two two-seaters to UBS version. They were equipped with the western avionics, but the armament remained the same. As of 2006 the service of the Slovak fighter was contracted to the Russian company RSK MIG. And that became a hot issue in operating the Slovak aircraft. The standard maintenance was provided by Slovak ground personnel, but more complicated jobs could only be performed by the Russian civilian technicians. Their long-term presence at the NATO airbase caused the raised eyebrows of the Slovakia's allies. The Russian service was neither reliable nor financially feasible. According to the contract at least eight fighters were supposed to be airworthy at all times, but this number varied around four to five aircraft and pilots could not log the required flight hours. In 2018 the purchase of new F-16C/D Block 70 was approved and after their arrival Migs were to be struck of charge. After the Russian invasion to Ukraine the situation became unsustainable. Therefore, Slovakia made agreement with Czech, Polish and later Hungarian neighbors to protect the Slovak

airspace. On September 9, 2022, after 30 years in service, Mig-29s were officially grounded. Even after this deadline some of them performed the sporadic training flights. Even though the talks about their transfer to Ukraine were going on for a whole year this only took place in March 2023. Officially Ukraine received 10 airplanes from Slovakia in airworthy (repairable) conditions and three grounded without engines for a long time as a source of the spare parts. In reality only eight aircraft, flying until the official grounding on September 9, 2022, went to Ukraine. Remaining five had been struck of charge before this date. Donated single-seat fighter carried the following bort numbers: 0619, 0820, 0921, 2123, 3709, 3911, 5113, 6124, 6425, 6627 and 6728. Two two-seaters were coded 1303 and 5304.

Airframes 5113 and 0820 were not upgraded to AS version and it is safe to say that they belonged to three engine-less airframes stored for spare parts. 5113 was from original Czechoslovak batch. 3709 and 3911 belonged to those as well and even though they were upgraded to AS standard in 2018 they were beyond their airframe life and in 2019 they were struck of charge. The last of five decommissioned aircraft was Mig-29UBS two-seater, bort number 1303 which technical life was exhausted in the beginning of 2022. As of the end of 2018 the second two-seater marked 5304 reached the end of its airframe resource but some maintenance was performed on it and it flew until September 9, 2022. In addition, the following single-seaters Mig-29AS were grounded: 0619, 0921, 2123 from the first Russian batch and 6124, 6425, 6627 and 6728 from the second one.

Before the airplanes were handed over to Ukraine the US origin equipment (navigational, communication aids and friend-foe identification)

had to be removed from the AS and UBS versions. A week before the hand over the Ukrainian technicians arrived in Sliač and brought with them their own devices and parts which they installed into Migs in place of those of the western origin. On March 23, 2023, four aircraft were flown over to Ukraine. They were 2123, 6124 and 6627 in the grey-green camouflage and 0921 sporting the digital camouflage. The Slovak national markings on the wings and vertical tail surfaces as well as unit markings on the engine intakes were overpainted. Only bort numbers were retained. The freshly painted areas can be identified by the higher sheen. The Ukrainian pilots flew them eastbound, towards the border. According to the official sources these four Migs were immediately deployed to the Kharkiv area defense. The remaining nine airframes were delivered to Ukraine by ground. Besides the fighters Slovakia also delivered fuel, lubricants, spare parts and ground equipment to Ukraine. AA systems 2K12 Kub (SA-6 Gainfull) with 200 missiles were donated as well. For the delivered fighters and rockets, Slovakia was compensated from EU funds. At the same time Slovakia was offered to purchase 12 Bell AH-1Z Viper attack helicopters. These aircraft were originally manufactured for Pakistan, but the Americans ultimately cancelled the sales. Slovakia should receive them at one third of the original price. It's a compensation for Mig-29 transfer to Ukraine as well as delayed delivery of new F-16s.

### Falklands war veteran

It took more than a year to deliver fighters from Poland and Slovakia since the talks about it started. It's not an isolated case though. For example, the delivery of 14 Mi-8 helicopters from



The photograph from SIAF 2018 held at Sliač shows Mig-29AS bort number 6627. The tape in front of the windshield indicates rather poor technical condition but in the end this aircraft was one of those which did fly to Ukraine.



Mig-29AS bort number 0921 sporting digital camouflage is getting ready to depart for Ukraine on March 23, 2023.



The Ukrainian armed forces published the video featuring Mi-24 helicopters of the Czech origin. The video contains the older images, for example those showing the sunflowers.



Four Slovak Mig-29AS are getting ready to depart from Sliač to Ukraine. The aircraft bort number 6124 is in the foreground.





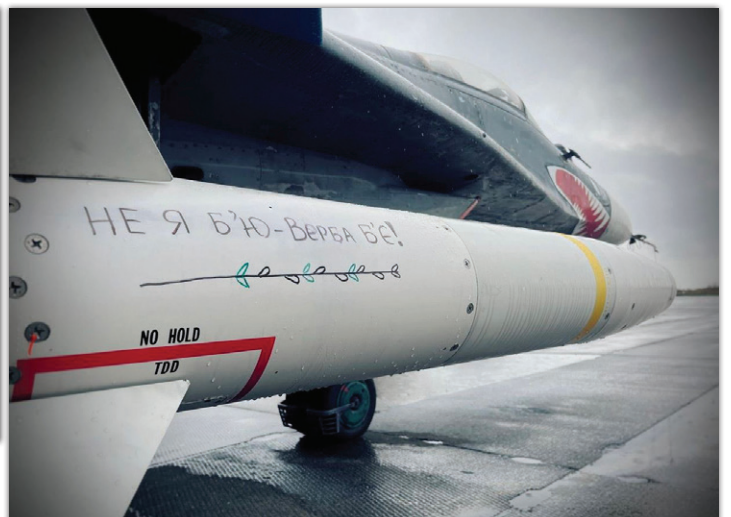
A series of photographs capturing the pilots and ground personnel servicing the Ukrainian Mig-29s. Their bort numbers were censored.



A Ukrainian Su-24 bort number "yellow 54" carrying yellow-blue painted drop tanks. The inscription on the side of the tank, PTN-PNCH, could be translated as "Putin poshol na khuy" (Putin is screwed up).



Another aircraft bort number 60 is visible behind Su-24 "yellow 54" tail.



This Ukrainian Mig-29 is not only interesting due to its Easter messaged to the occupiers painted on the HARM missile but also featuring a shark mouth.





In addition to the national markings the marking of the military intelligence air force was added to the nose of the aircraft.

The military intelligence released the images from the training on Black Hawk.

Croatia was mentioned the first time in November 2022 and they are not in Ukraine yet, even though the talks resumed recently. However, Ukraine is already flying Sea King and Black Hawk helicopter which deliveries we mentioned in the previous articles of this series. Black Hawk is an upgrade of the older model UH-60A and was received by the military intelligence. So far, a video was published supposedly showing the special units' training with this helicopter. Sea King's history is even more interesting. Two of them have been delivered so far, the third aircraft was still in Britain at the time of this article release. It has been several year the helicopters were stuck of charge from the Royal Navy so they needed to be commissioned again. BBC journalists spoke with two Ukrainian technicians who had trained for maintenance of this type for seven months and they were very satisfied with the it.

As per their account very little remains from the original equipment as most of the components were upgraded. Even more interesting, the BBC report was made on board of one the Sea Kings which is already in Ukraine. It appears that these aircraft had served in 1982 during the Falklands War, therefore its Ukrainian crew is younger than their helicopter! In addition, more than 40 years ago it played an important part in the conflict. Flown by the 820th Squadron commander, Ralph Wykes-Sneyd, it flew through the storm to bring the British ground forces commander, General Jeremy Moore to Port Stanley to accept the Argentinian surrender on June 14, 1982. No other aircraft could make it through the storm at that time. "It was very interesting operation," retired Rear Admiral Ralph Wykes-Sneyd told BBC. "The armistice has not been signed yet so on our flight to Stanley we not only faced the bad weather but also several rather hostile Argentinians.

This helicopter, currently in Ukraine, had been flown several times by Prince Andrew who in the Falklands War served as a naval pilot. Speaking about esteemed war veteran the Ukrainian pilots highly praise Sea King. They say it's easily controllable in the difficult conditions, has a lot of space, good payload and operational economy. These helicopters fly the soldiers and supplies missions, but their most important role is for the search and rescue missions. That, according to

its pilots, includes flying behind the enemy lines. If the Ukrainian aircraft is hit and pilot has to eject Sea King sometimes has to fly over the territory which is not under Ukrainian control.

### Ukrainian losses

As stated before, not all kills could have been documented and more often than not are confirmed after a long period of time (if confirmed at all). During this reporting period there were only two confirmed losses on the Ukrainian side and in neither case it was necessary to cross the frontline. On March 1, near Bakhmut, Su-24 bomber from the 7 Brigade of the Tactical AF was

shot down. Its crew, Lt. Col. Viktor Volynets and Lt. Igor Solomenikov lost their lives. The flight of Su-27 fighter, bort number "blue 30", which took off on March 27 at 10:20 pm from Myrghorod in Poltava region, ended tragically. The pilot was Major Denys Kyrylyuk credited with 80 combat missions in the defense of the motherland from the Russian invasion. On March 28, at 12:45 am, after intercepting Shahed-136 Iranian-made drones he crashed at Tovkachivka village in Tchernihyv region and was killed.



Images from the BBS documentary on Sea King helicopter deployment in Ukraine.





A Ukrainian Su-24 from the 7 Brigade of the Tactical AF, shot down on March 1 near Bakhmut. Lt. Col. Viktor Volynets and Lt. Igor Slomenikov were killed.

Deputy commander of the 831 Brigade of the Tactical AF, Major Denys Kyrylyuk, was shot down on March 28 while flying Su-27 „blue 30“. He was probably hit from large distance by a R-37 missile launched from the Russian Su-35.

### Russian losses

The confirmed Russian losses during the reporting period are higher than Ukrainian ones – at least four aircraft destroyed and two helicopters. On March 1, the images were published from the crash site of a Russian Su-25 which was shot down at the unknown location in Ukraine. It's pilot successfully ejected and was rescued by a Mi-8. On March 3, the friendly fire destroyed the Russian Su-34 fighter-bomber near the town on Yenakiev in Donetsk region. It was hit by Nikopol's AA rocket regiment. Both crew members ejected however Major Alexander Bondarev did not survive. Another

Russian Su-25 was shot down near Bakhmut by the 93 Mechanized Brigade of the Ukrainian armed forces. The aircraft crashed near the village of Zaitsevo. A pilot, supposedly member of the Wagner's mercenary group ejected. The fourth aircraft was lost under the unusual circumstances. Su-27 fighter burnt at the Uglovoeye airport in Primorsk area in the Russian far east. Normally such a loss would not have been relevant to the war in Ukraine, however, the attack was claimed by a partisan group and a video of the burning aircraft was published on March 10 by Liberty for Russia Legion. Two destroyed helicopters were both Kamov

Ka-52. Since the beginning of the invasion Russia has lost at least 33 aircraft of this type. First, on March 6 a video of a Ka-52 wreck near Vuhledar was published. More details about this loss are still unknown. Another one crashed on March 16 after it hit the high voltage lines. Both crew members were killed. Some sources state this took place near Orichiv in Zaporozhiye region, others say it happened south-east of Donetsk.



On March 15 a Su-25 was shot down near Bakhmut. It was supposedly flown by a Wagner's mercenary. A deployed parachute is visible in one of the pictures.

Ka-52 wreck found on March 6 near Vuhledar.



The picture released by the Russian Department of Defense captures Ka-52 in action. At least 33 helicopters of this type were lost in Ukraine.



# Letecká vojna nad Ukrajinou

## Another calm before the storm



Text: Miro Barič

A group of Mi-17s supplied to Ukraine by the US and originally intended for Afghanistan. Various markings can be seen, including on the lower fuselage and on the tail gates.

**The period from April 1 to May 1 can be described as the calm before the storm. Sure, the fierce fighting for Bakhmut continued, as well as at some other places, however, the front line was practically stagnant. Also, the preparations for the Ukrainian counterattack were on the way in the form of attacks on the important targets in the Russian rear. Similar situation occurred last summer before the liberation of the Kharkiv area and Kherson.**

**Photo: Ukrainian Armed Forces, social media and other public sources**

Bakhmut did not fall. That's the summary of the fighting during the month of April. Sadly, a lot of horror hides behind this short statements, experienced by both the defenders and Ukrainian civilian population. The worst was the rocket attack on Friday April 28, when after 51 days of calm Kiev became the target again. It happened exactly on the day when Slovak president Zuzana Čaputová and Czech president Petr Pavel were visiting the capital. Both had to seek shelter due to the air raid alarm. On that day, the Russian strategic bombers launched 23 missiles, the Ukrainian AA defense shot down 21 of them. Two kamikaze drones were also destroyed. No victims were reported in Kiev however in Dnipro a woman with three years old daughter died. The worst impact was suffered by the town of Uman where part of nine stories apartment building collapsed after the hit. 23 people died including four children. The attack took place at four o'clock in the morning when people were asleep.

### Patriot protects Ukraine

In the end of April, the Ukrainian AA defense received an important reinforcement. According to the official statement of the Ukrainian AF, the first battery of the Patriot system was

fully operationally deployed and in the end of the month another battery was preparing to deploy to the positions and the action. There have been talks about the possible Patriots' delivery since October until the USA confirmed in December delivery of one battery. In January, Germany promised delivery of another battery and Netherlands then joined with delivery of two launchers. At peace time the crew training takes a year, but the Ukrainian soldiers had to complete it at Fort Sill in Oklahoma much sooner. Their training was scheduled for 10 weeks – and yet they managed to speed it up. "The Ukrainian soldiers made impression and learned very fast. Thanks to their deep knowledge and experiences in the AA defense in the combat zone it was easier for them, even though not always easy, to understand Patriot system", told US Army General Shane Morgan to server Politico. In total 65 Ukrainian soldiers, age 19 to 67, including several women, participated in the training. All were veterans of fighting against the Russian invasion with older AA system of the Soviet origin. Thanks to their vast combat experience they could advance faster than the students who would have to learn it all from the scratch. After several weeks they were able

to erect the system from the transportation conditions to combat ready and operate it against the simulated threats in less than 45 minutes which is the American standard. They repeated this exercise 2-3 times per day to obtain the highest proficiency. Based on their knowledge of the Russian operation they even created their own scenarios. "They are best of the best in what they do for the AA defense of Ukraine", concluded General Morgan for Politico. The training at Fort Sill was completed in March. Then the Ukrainian soldiers left the USA to an undisclosed location in Europe where the training of the second group of the Patriot crews took place. Both groups completed their training there together and from the end of April defend Ukraine.

### Revenge in Sevastopol

Immediately the following day after the tragedy in Uman an attack on the port of Sevastopol on the occupied Crimea took place which Ukraine called "God's revenge". Officially they don't claim these incidents at all. On Saturday April 29, after the drones' attack, the fuel dumps for the Black Sea fleet were set on fire. The massive fire destroyed, according to the Ukrainian estimates, 40,000 tons of fuel. The Russian officials stated





*Shots of Mi-17 helicopters delivered from the USA and used by the 12th Separate Brigade of the Army Aviation of Ukraine.*

*This member of the 12 Separate Brigade of the Army Air Force of Ukraine has an interesting patch of the Slovak Helicopter Wing Prešov on his shoulder.*



*Nice detail of the decoy targets on a Ukrainian Mi-24 helicopter.*



*S-8 missiles on a Ukrainian Mi-8 helicopter.*



*A pair of Ukrainian Mi-8s armed with a machine gun in the nose. Between them is an Mi-24.*



*S-8 missiles being loaded into the missile launchers of a Ukrainian Mi-24 helicopter.*



*Unusual coloring of one of the Ukrainian MiG-29 fighters.*



*The first photo showing the originally Slovak MiG-29 in Ukrainian service. Judging by the distinctive camouflage, it is a two-seater UBS number 1303. It can be seen that the Slovakian insignia has been sprayed with the original shade of camouflage. The number 1303, which remained on the machine during transport from Slovakia, was repainted by the Ukrainians in a different color.*





A series of photos shows the destruction caused by a Russian missile in Uman on April 28. 23 people were killed in the destroyed apartment building.

that four drones attacked the dumps and two of them were destroyed. Two however penetrated and destroyed four tanks. The images of the burning dumps show however that 10 to 12 tanks had been hit, which is approximately half of the dumps capacity. After several day the unconfirmed reports were released that in fact as many as 30 drones had been used in the attack in three waves. In that manner they managed to deluge the Russian AA defense and part of them penetrated to the target. The drones were readily available, commercial, Chinese-made Mugin-5 modified by Ukraine to carry the explosives. Another piece of information worth pointing out is that there were no casualties during this attack on the Russian military target. That's in the sharp contrast with the official Russian statements which continue to stress out that only Ukrainian military targets are attacked. Somehow, they manage to hit the apartment buildings, markets and kill civilian population on the regular basis.

#### Bombs fall on a friendly town

The attacks against civilian targets took place on their own territory. On Thursday April 20 at 10:15 pm the explosion took place in the Russian city of Belgorod, approximately 30 km from the Ukrainian border. The security camera recorded the incident. It occurred near the busy crossroad

of Vatutin and Gubkin streets. First, the impact raising cloud of dust was recorded. After approximately 18 seconds the explosion took place damaging the buildings in the vicinity and destroying several parked cars – one of them was thrown in the air to the height of several stories and landed on the roof of a market located nearby. Next day the Russian authorities confirmed three people injured with the great luck no one was killed. The Russian Department of Defense confirmed that Su-34 were flying over the city and the “abnormal deployment of the ordnance” occurred. The most probable explanation is that the Russian bomber intended to launch the gliding bombs on the Ukrainian targets but for some reason the wings on them did not deploy and they hit Belgorod in the free fall. The aircraft attacking Ukraine had been flying over the city on the regular basis. The explosion created the crater 20 m wide. During the damage and debris removal another unexploded bomb was found. Until its disarming 3.000 citizens from 17 apartment buildings had to be evacuated.

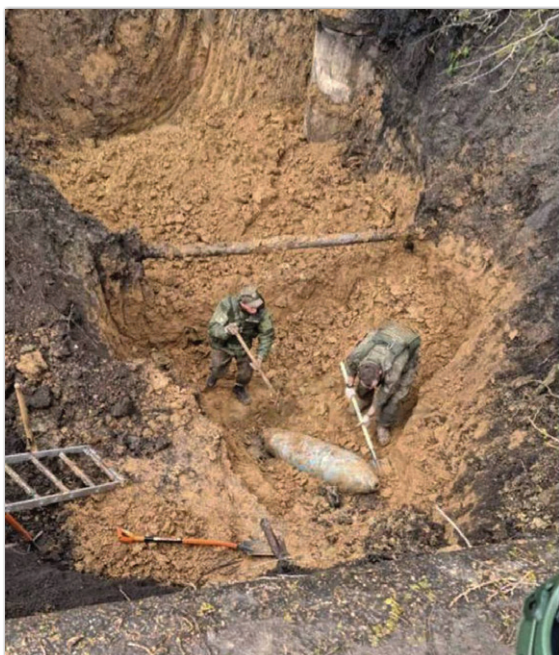
#### A civilian captured in Russia

During the reporting period no confirmed kill of the manned aircraft or Ukrainian AF helicopter was recorded. The Russians of course claimed several kills without confirmation, and it cannot be

excluded that some of those will be documented much later, as it happened previously. It is however a first month since the outbreak of the war that not a single loss of a Ukrainian military aircraft was visually confirmed. Only one bizarre incident occurred involving a Ukrainian civilian aircraft. On Wednesday April 5, near Butovsk in Bryansk area, an ultra-light Aeroprakt A-22 Foxbat airplane made an emergency landing. This type has been in production since 1990s and marketed in the USA as “Valor”. The airplane had to land after one of its propeller blades broke off. The pilot was captured by the Russian border patrol. An older man supposedly stated that he was a Ukrainian civilian with a task to photograph the important objects. The Russians also published the pictures of the guns and ammunition supposedly in his possession. This describes the event release by Russians only, the real events remain unknown. To dispatch a civilian aircraft to photograph military objects at the time of available drones doesn't make sense.

#### Russian losses

During the reporting period several confirmed Russian losses were reported. On Friday April 7 a video was published showing a Russian Su-25 fighter-bomber shot down. It was hit by a



One unexploded bomb was also found after the actual bombing of the Russian city of Belgorod on April 20.



A Ukrainian civilian ultralight aircraft made an emergency landing in Russia's Bryansk Oblast on 5/4. The Russians immediately released photos of its captured pilot and his weapons.



detachment of the Ukrainian paratrooper unit at Oleksandrivka in Donetsk region. The aircraft fall can be seen in video followed by great explosion upon impact. To the left of the cloud of smoke and fire a white parachute descending to the ground can be seen. Therefore, the pilot was most likely rescued. By the way it was Russia's 30th loss of this type of aircraft since the war started. Only Ka-52 helicopters suffered higher losses, 34. In April Russia also lost three helicopter, all of them Mi-24. One was shot down by a Ukrainian 10th Independent Mountain Attack Brigade on April 5 near the village of Berestov in the county of Bakhmut, Donetsk region. The aircraft belonged to the 112th Independent Helicopter Regiment and its loss was confirmed by the Russian authorities. It was hit by Piorun portable missile. Both crew members were killed. One of them was Lt. Ilnaz Fazylov. On April 20, under the unknown circumstances, Mi-24VM was lost. According to the limited information it crashed into the Sea of Azov near Kyrlyivke in Melitopol county. At least one crew member was killed identified as Major Andrej Suetov. On April 24, near Krupyansk in Kharkov region a wreck of the Russian Mi-24VM helicopter was found. It was stated that it had crashed after hitting the high voltage lines. Both crew members were killed. One loss was sustained far from the war zone during the non-combat flight. It's an example of the negative impact of the war on the Russian aircraft maintenance. On April 26 a Mig-31BM was set on fire and consequently crashed near the village of Rizh-Guba. Both pilots ejected successfully.

#### Accused of treason

In the end let's present the case which show the damages caused by disobeying the orders-even with the best intentions. In the middle of April, a group of Ukrainian soldiers was accused of treason and abuse of power. The reason was that during the unauthorized mission they disclosed the information that, in July 2022, enabled the Russians to successfully attack the reserve airbase Kanatove. The Ukrainian secret service



Russian Major Andrei Suetov was killed on April 20 in a Mi-24VM.



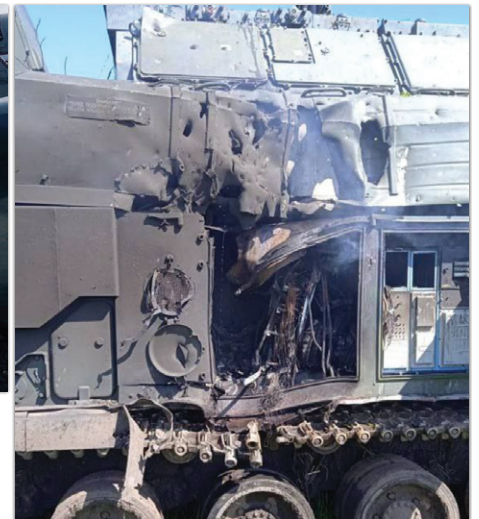
Major Andrei Suetov's name is also on the S-8 rocket that the Russian unit feeds into the missile launcher on the Mi-24.



About half of the tanks in the Black Sea Fleet's fuel depot in Sevastopol burned down on April 29.



A Ukrainian Su-25 fires unguided missiles at Russian positions.



A HARM missile homed in on this Russian Tor system (SA-15 Gauntlet).



Lieutenant Commander Ilnaz Fazylov was killed on April 5 after his Mi-24 was shot down by the Ukrainian 10 Independent Mountain Assault Brigade.



The crash of a MiG-31BM fighter in the Murmansk region was captured on video on April 26.



SBU stated in their report that the accused group of soldiers decided to proceed with an operation in order to capture the Russian military airplane with its pilot who supposedly agreed with the proposed defection to the Ukrainians. The operation was not approved however, and the soldiers acted against the secret service disapproval. "Thank to this, the enemy acquired the information about the Ukrainian AF personnel and operational aircraft locations. This information enabled the Russian Army to shell Kanatove airport in Kirovograd region", stated SBU and added that during the Russian raid the unit commander was killed, 17 Ukrainian soldiers wounded, two fighters completely destroyed and the airport runway with building heavily damaged.

The Russian rocket attack took place on July 23, 2022. As a result, two Su-27 fighters were destroyed. After that the photographs appeared of the wrecks of at least two more Su-24 destroyed at Kanatove airport. Those had been most likely struck of charge before the Russian rocket attack. This case is obviously related to the article written this March by the American journalist Michael Weiss from Yahoo News. He spent several weeks researching the Ukrainian efforts to convince Russian pilots to defect to their side. Weiss also met a Ukrainian volunteer Bohdan who took part in the operation. The IT

sector volunteers, together with the secret service and special units have worked on it from March to June 2022. It was based on the law adopted after the Russian invasion by the Ukrainian Parliament. Large sums of money were offered to the Russian soldiers who would defect with their equipment. One million US dollars for a military airplane, half a million for a helicopter. In addition, the soldiers and their families were promised new identity and help with relocation abroad. Volunteer Bohdan described three cases for Yahoo News when the Russian pilots were almost convinced to defect. The Russians on the other side claim to have known about the plan from the beginning and playing double game with the Ukrainians.

One of those three pilots was Igor Tveritin. This experienced 48 years old pilot previously flew strategic Tu-160 bombers and served in Syria as well. During the war in Ukraine, he already flew Tu-22M3 and bombed the targets in Mariupol. He had a wife and three children and demanded that the Ukrainians get them out of Russia first. He was supposed to fake a technical problem during the flight and land on the Ukrainian side. The rest of crew had no idea about his plans. Then, the Russians captured Mariupol and Tveritin was transferred to other flight duties. Also, he supposedly kept raising his demands and the Ukrainians cut off the relationship with him.

Another pilot, 33-years old Andrei Maslow, flew Su-24 bomber. He was married as well but wanted to flee with his lover and demanded that the Ukrainians arrange a new identity for her. Once the Ukrainian checked her background, they found out she was in contact with the Russian FSD and this plan fell through. For the third time the Ukrainian established the contact with 36-years old Roman Nosenko who flew Su-24 and Su-34. He was going to incapacitate his co-pilot with drugs put in his coffee. He demanded though that his wife escaped first but the Ukrainians also found out she was in contact with FSB so they backed off. These attempts were suspended last June and according to Yahoo News it is clear now that the Russian FSB knew about these plans in many cases. The Russians claim they had known about all of this from the beginning, and they were pulling the Ukrainians' leg. It is clear today that the attempt organized by the soldiers from the Kanatove airbase on their own was a Russian trap in fact. It is certain though that FSD doesn't trust their own pilots-three of them mentioned above no longer fly.



Photos of the aftermath of the July 2022 Russian missile attack on the Kanatove reserve airfield have only now been released by Ukraine's SBU secret service.



The non-airworthy Su-24s were also destroyed in the attack on Kanatove on July 23, 2022.

The Russian attack on Kanatove destroyed two Su-27 fighters.



# The doom

Text: Richard Plos

Illustration: Adam Tooby



A thick smoke pours from the huge building and the sounds coming from its burning insides resemble the roar of a wounded animal. Flames are rapidly consuming more than a four millions of cubic feet of hydrogen of the two airships inside, and the glare of the fire competes with the sun, which is just about to start climbing over the horizon to shine on another day of the war ...

The Zeppelin base in Tondern was a thorn in the side of Britons during the WWI. It had been under construction since September 1914 with the first two hangars completed during March 1915. From then on airships took off from there to raid Great Britain. The largest of the three hangars was completed on January 17, 1916, and named Toska, while its two smaller predecessors were named Toni and Tobias. All the names therefore began with the letters TO, as did Tondern. Toska was of directly gargantuan proportions. It measured 730 ft long, 220 ft wide and 130 ft high. The base was a tempting target, but it remained out of range of Britons. However, the development of naval aviation and the emergence of the aircraft carrier HMS Furious offered a new option: an attack from the sea.

The first suggestion for such action came from W/Cdr Richard Davis and after his plan was approved by the Royal Navy supreme, Admiral David R. Beatty, the airmen quickly set about preparing before the "old-school battlegewagon commander" changed his mind. The operation, designated F.5, was scheduled for May, and the attack was to be carried out by two flights of Camels. Capt. William Jackson was to lead Capt. William Dickson and Lt. Norman Williams, while the second flight was to be led by Capt. Bernard A. Smart, Capt. Thomas Thyne, Lt. Samuel Dawson and Lt. Walter Yeulett. The standard bomb load of four 20 lb Cooper Mark II-A bombs, was replaced by two

49 lb Mark IIIs for this mission, and the pilots practiced attacks on targets, which were drawn on the ground. At the end of May 1918, HMS Furious sailed with seven 2F.1 Camels on board, but shortly afterwards a German U-boat appeared, and so she returned to the port. She set sail again on June 18, but the fleet was spotted by a pair of German floatplanes. HMS Furious launched some Camels, which shot down one enemy, but the other escaped. As they were detected, another return was logical. HMS Furious then sailed for a third attempt on June 27. The code was changed to F.6 and rolling, but the weather was against. At midnight on June 28 a storm broke and there was no choice but to return for a third time. The fourth time attempt started at noon on July 17, 1918, and by midnight the HMS Furious was as close to the Danish coast as she could get. But before the F.7 operation could begin, the storm came again. Instead of returning, the command decided to cruise well away from the Danish coast, and at dusk, under overcast skies, HMS Furious set off again for the Danish coast. At 0315 the first of seven Camels took off. The target was some 80 miles away, so the return leg was at the limit of the Camel's range. The backup plan was to land in Denmark and to get to internment. Thyne suffered an engine failure shortly after take-off and had to return, so six Camels continued to the target. An hour and twenty minutes after take-off, Jackson saw the silhouettes of the hangars ...

At the Tondern base, the sky was clear at the time. Kptlt. von Buttler-Brandenfels was looking from the window of his house just a half a mile away from the base. In the Toska hangar, both his L 53 and the more modern L 60 of Kptlt. Hans Flemming were resting. Each of these airships was filled with approximately two millions of cubic feet of hydrogen and several

tons of bombs were also prepared on trolleys in the hangar. The first flight hit Toska with at least three bombs and all hell broke loose inside. A frantic von Buttler-Brandenfels rode his bicycle to the base after the first explosions. There, he could only watch the doom of his airship through the open giant doors (which were at either end of the hangar). The brave soldiers, despite the flames, got to the bomb carts and pulled them out before they could explode!

The second flight appeared on the scene ten minutes later and flying from the opposite direction, i.e., from the east. Smart hit Tobias with one bomb. A dirigible balloon inside burned up, while the second Smart's bomb hit a wagon full of hydrogen cylinders but did not explode. In Adam Tooby's painting for the new 1/48 scale Sopwith 2F.1 kit, Smart's Camel just overflies the burning Toska seconds after he himself set the Tobias on fire.

Three of six pilots decided on plan B and headed for Denmark after the mission was accomplished, but three remaining, Smart, Dickson and Yeulett, set the course for return. Unfortunately, Yeulett ran out of fuel and his body was washed up on the Danish coast a few days later. He was the only casualty of the whole event on both sides. Yeulett was just 19 years old and due to his poor performance during practicing prior to L.6 operation, Davies cut him off the lineup. However, in the interim before operation L.7, young pilot improved and was taken in, which proved fatal. Only Smart and Dickson made it back. Both landed on the water and were lifted from the sea as were their Camels. The raid marked the end of the base. It continued to serve only as an emergency landing strip, and when the borders changed after the war, Tondern became the Danish Tønder...



# Hickam Field Zero

Text: Jan Bobek

Illustration: Piotr Forkasiewicz



The Japanese attack on the American base at Pearl Harbor in Hawaii on December 7, 1941, is one of the decisive milestones of the Second World War and of the entire twentieth century. It was the catharsis of a long-standing crisis in Japanese-American relations and brought the United States into the World War 2. United States as a global economic and military power had until then kept aloof from the war in Europe, even they were preparing for it and supporting their future allies.

Japanese task force launched 350 machines into action out of the 414 available on board of six carriers. In the first wave were lost three Zeros, one D3A and five B5N bombers. In the second wave, six Zeros and fourteen D3As were lost. Fifty-five pilots were killed, none were captured, except for the ironic situation of fighter pilot PO1c Nishikaichi. A total of 74 aircraft returned with damage. Nine midget submarine crews also lost their lives and one was captured. Of the 79 fighter pilots who took part in both attack waves, only 17 lived to see the end of the war.

The airstrike killed 2,335 members of the US armed forces and injured 1,143. 68 civilians also lost their lives and 35 others sustained injuries. In addition to the sunken and damaged ships, nearly 350 aircraft were destroyed or damaged. Three civilian machines were also shot down.

During the two waves of the Japanese raid on Pearl Harbor, 21 US Navy ships were sunk or damaged, but 18 were recovered or repaired and returned to service. For example, the badly damaged battleship USS Nevada was combat deployed in October 1942.

The USS Enterprise, as one of the carriers that escaped the raid on Pearl Harbor, fought in the Battle of Midway six months later and participated in the sinking of four of the six carriers that participated in the attack on Pearl Harbor.

During this raid, which was unprecedented both in terms of scale and the manner in which a large carrier group was deployed, a number of dramatic moments occurred. One was the landing of B-17 bombers at Hickam Field. Their arrival from the U.S. had been expected, and the first wave of the Japanese raid was initially mistaken by the Americans for the very B-17 bombers that were to arrive in Hawaii.

The unarmed B-17s arrived at Hickam just as the base was being targeted. B-17s were attacked not only by Zeros, but even by crews of D3A Val dive bombers. One of the four-engine machines they deployed for the landing was a B-17C (40-2074) of the 7th Bombardment Group, 14th Bombardment Squadron, whose first pilot was Captain Raymond T. Swenson. Their aircraft was attacked by commander of the first wave fighter escort, Lt. Cdr. Shigeru Itaya of the aircraft carrier

Akagi. His second wingman, who was PO1c. Shinaji Iwama, managed to set fire to a crate of flares in the fuselage of Swenson's bomber just before landing and a fire broke out on deck. Swenson decided to abort the landing manoeuvre, regained altitude and hid in the low lying clouds. On the second landing attempt, Swenson's machine broke in two shortly after touchdown. As it did so, it was still under attack by Japanese fighters, who opened fire on the fleeing crew.

The wounded passenger, who was a surgeon, 1st Lt. William R. Schick, was strafed by Itaya's first wingman, PO1c Takashi Hirano. Unfortunately, Schick was hit again and soon succumbed to his injuries. Hirano, however, struck the surface of the airfield with his propeller and auxiliary tank. His engine stopped and the Japanese airman crashed in a nearby street, causing the deaths of four soldiers.

People flocked to the wreckage of his Zero, shouting "kill him, kill him!". However, Hirano died when he crashed into one of the buildings. His plane AI-154 became the first Zero to be examined after the attack on Pearl Harbor. Among other things, a map was found in its cockpit, which led the Americans to attempt to attack the Japanese as they sailed away.



# Friedrich Eberle

Text: Jan Zdiarský  
Illustration: Shigeo Koike



The bombing mission of the 8th AF on 22.12.1943 against transport targets in Osnabrück and Münster took place in very difficult conditions. Thick cloud cover, coupled with a radar malfunction of one of the lead aircraft, caused great navigational problems and ultimately the impossibility of good target aiming. Of the 402 B-17 and B-24 bombers from 8th AF, only 311 were able to attack their targets. Lessons learned by VIII. Bomber Command headquarter from previous heavy losses of four-engine bombers, which were attributed to Luftwaffe fighters, led to the dispatch of strong fighter protection. The bombers were protected by 40 Lightnings and 448 Thunderbolts from the 8th AF, along with 28 Mustangs from the 9th AF. Still, bomber losses were quite heavy – five B-17s and twelve B-24s, with three more bombers written off on their return.

Fighters from JG 1, JG 3, JG 11, ZG 26, and JG 54 flew against the intruders. They claimed victory over seven American fighters in addition to the eighteen bombers. However, losses among the "little brothers" amounted to only two Lightnings and one Thunderbolt.

The two P-38s lost belonged to the 55th Fighter Group based at Nuthampstead. While one of them, Lt. R. W. Brown managed to crash-land his aircraft near Onnerpolder, Holland, after a dogfight with German fighters and was captured, the other, Lt. J. R. Pruitt crashed and is still listed as missing. His aircraft probably crashed near Wilsum, Germany.

The conqueror of Lt. Pruitt was Hptm. Friedrich Eberle, commander of III./JG 1 and thus became his fifteenth victory. At the time, the recently thirty-year-old Austrian Eberle was an experienced fighter and commander. His combat career began with the outbreak of war in September 1939, when he served with JG 51. He scored his first kill, a French Morane, on 23 November 1939. This was followed by involvement in the Battle of Britain, during which he scored two more kills. In November 1940 he was appointed commander of 1st Staffel JG 51. With

this unit he raised his score to twelve. Various command posts in training and replenishment units followed from the end of 1941, after which, already at the rank of Hptm., he was assigned to 9./JG 1 on 8 October 1943.

The battle of 22 Dec 1943, depicted in Koike Shigeo's painting, also falls into this period. The victory depicted was achieved by Hptm. Eberle in the cockpit of a Bf 109G W.Nr.160303 marked "White 20". He was shot down himself in the same machine on 30 January 1944. It happened after a duel with Lt. Robert Booth of the 359th FG.

Although Eberle was wounded in combat, he continued to command the unit until 22 April 1944, when he turned it over to Maj Hartmann Grasser. He himself was transferred to the Frontflieger-Sammelgruppe (depot of operational pilots) at Quedlinburg, and after less than a month's rest, he became the Staffel commander at Kdo. Skagerrak. At that time his victory score stopped at number 33.

On 1.7.1944 he was sent to Rotenburg/Wümme, to become the commander of the newly formed III. Gruppe of Jagdgeschwader 4. In this new command position has not achieved any victory. Neither air nor personal. According to the pilots of his unit, he showed a strong tendency to avoid danger, even to cowardice. Many times he turned his aircraft back after takeoff because of alleged malfunctions. This happened already on the very first combat operation of his fresh Gruppe on Monday, September 11, 1944. The premonition came true. III./JG 4 suffered heavy losses that day in an encounter with 3rd BD bombers and their fighter escorts. Sometimes he withdrew from combat alone, at other times he led his entire unit out of the possibility of encountering the enemy. Failure to obey orders, self-interpretation of instructions... The pilots of III./JG 4 still remembered his defeatism decades later with considerable disdain.

But it's very easy to judge. At that time, they were all young boys shortly out of training, full of vigor to

fight and could not put themselves in the skin of their commander. He himself had been through many battles since the beginning of the war, he had been shot down and wounded several times, rescued by parachute, made crash landings. In addition, he witnessed many times how pilots under his command died, he must have been the one who sent out casualty reports, wrote letters to the families.

Whether justified or not, the situation with the unit's leadership in combat was repeated on 1 January 1945 during Operation Bodenplatte. That day, Hptm. Eberle led I. and III./JG 4 to the Belgian A-89 Le Culot airfield. In a combination of successive problems and navigational difficulties, Hptm. Eberle turned his III. Gruppe back shortly after crossing the battle lines. Confusion ensued among the other pilots, some continuing on to a target they could not find, some returning. Eberle faced severe punishment for this action. Although some sources state that he was court-martialled in a field trial, it was more likely a sort of public pillorying involving the pilots of I. and III. Gruppe JG 4. An actual field trial would probably have had a more far-reaching impact on Eberle himself, but also on the commander of JG 4, ObstLt. Michalski. Friedrich Eberle retained his military rank, but had to leave the unit. It is impossible to know what was going through his mind during the flight to LeCulot. What is certain, however, is that his decision probably saved the lives of quite a few pilots in his unit. Whether he had any idea what a disaster the whole Bodenplatte would be for the Luftwaffe is questionable. This last act of Friedrich Eberle in command of III./JG 4 is indicative of the psychological strain and exhaustion that could easily befall a commanding officer in a war that lasted several years, rather than the personal courage or failure of any particular pilot.

Not only for courage in combat, but for the art of defying what we consider to be senseless and beyond dangerous, those who can do so deserve great respect.



# Sopwith 2F.1 Camel

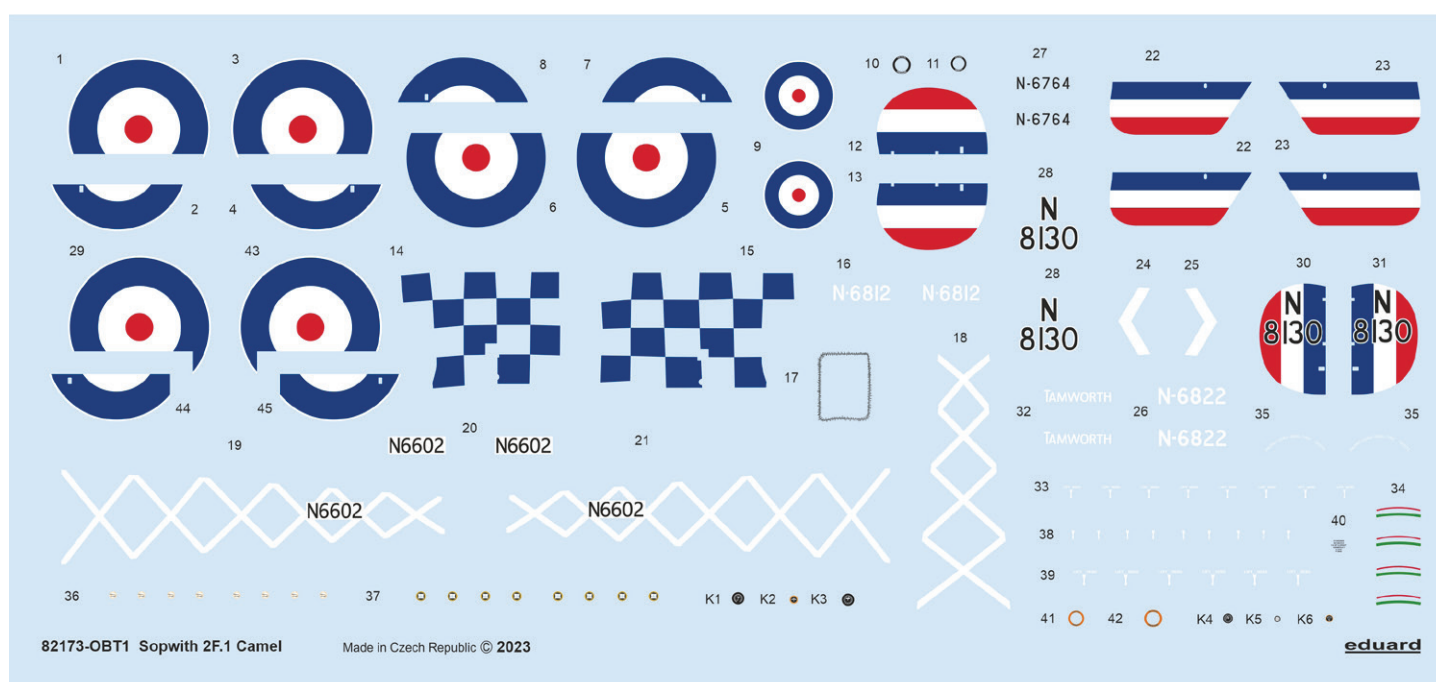
1/48

#82173

The ProfiPACK edition kit of British WWI fighter Sopwith 2F.1 Camel in 1/48 scale. This version of the legendary fighter was designed as the aircraft to be launched from the platforms mounted on the turrets of the major warships or from the early aircraft carriers. The split and folding fuselage helped to stow "Ship's Camels" on the decks.

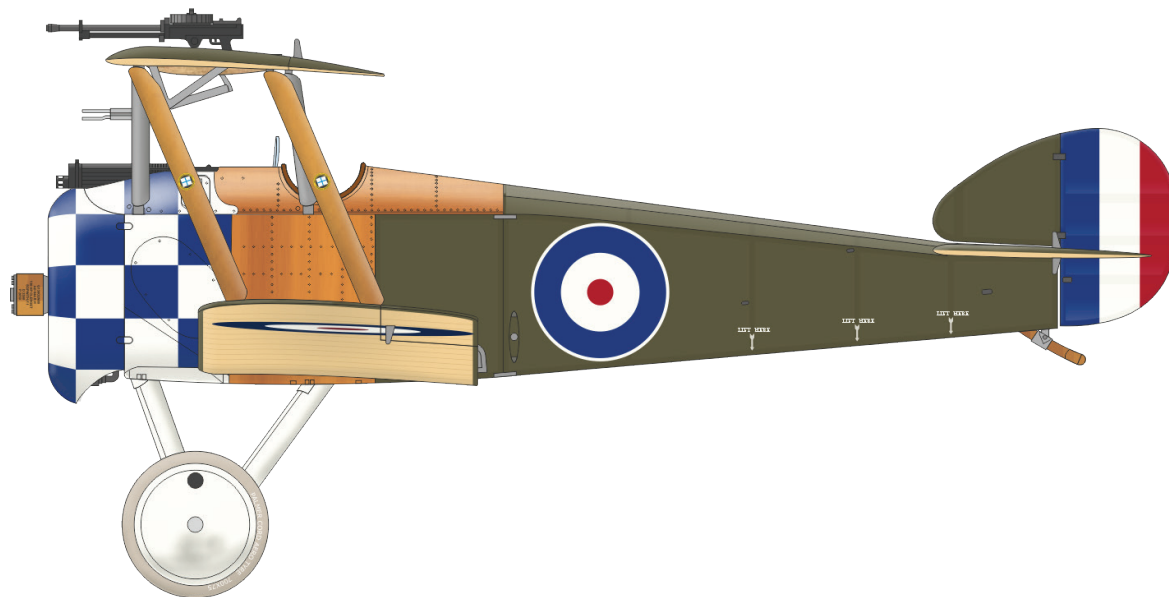
- plastic parts: Eduard
- marking options: 6
- decals: Eduard
- PE parts: yes, pre-painted
- painting mask: yes
- resin parts: no

Product page





## ■ N6755, Capt. Bernard A. Smart, HMS Furious, July 1918

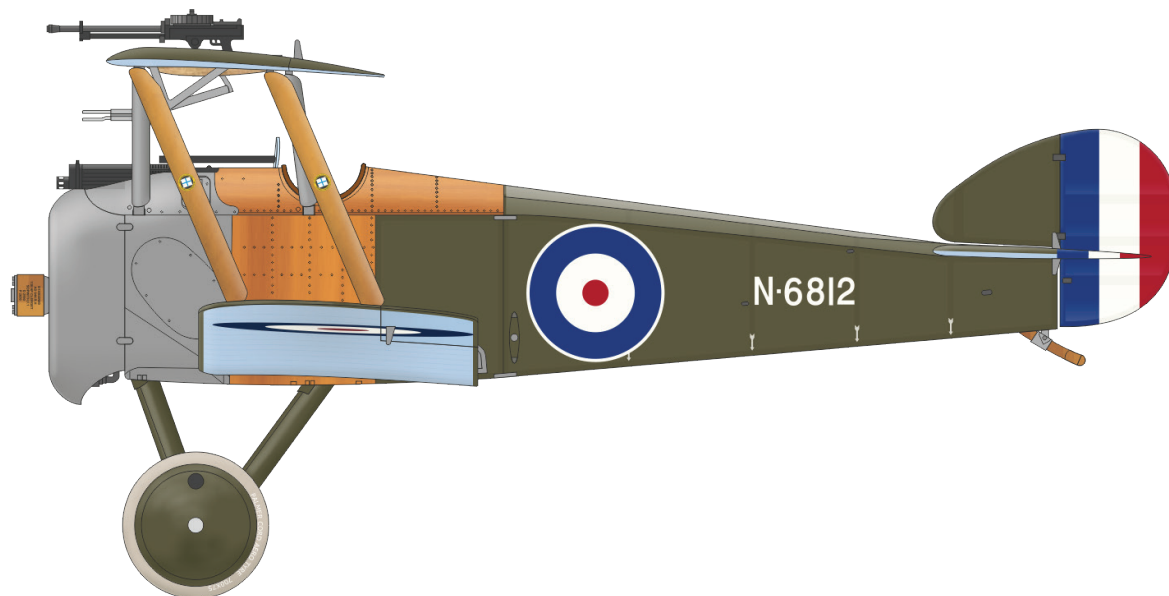


Bernard Arthur Smart was born on December 24, 1891 in Luton. He qualified as a pilot on July 24, 1916, becoming a Captain in the Royal Naval Air Service. He made himself famous with shooting down the Zeppelin L23 German airship in his Sopwith Pup on August 21, 1917, the 17-men strong crew led by Oblt. Bernhard Dinter was killed. As he took off from a platform on a gun turret of the HMS Yarmouth, he thus achieved the first ever aerial victory with an aircraft launched from a vessel. Smart's second day of glory came

on July 19, 1918, when he led the second wave of "Ship's Camels" in a raid on the German Zeppelin hangars at Tondern (today Tønder, Denmark). It was the first bombing raid carried from the deck of a Royal Naval Ship. Seven Camels 2F.1 took off from the HMS Furious and managed to destroy two airships (L54 and L60) hidden in the biggest hangar named Toska. A captive balloon in hangar Tobias was also destroyed. The N6755 serial of this Camel is probable and the coloring depicted here shows the aircraft prior to the

Tondern raid. For this mission, the roundels on the upper wing as well as on the fuselage and cockade on the rudder were toned down with PC10 or PC12 overspray, under which the insignia colors were only hardly visible. Some sources state the undersides were also oversprayed in one of the aforementioned colors, but the photo of one of the Camels which landed in Denmark on the return leg shows it was not the case. It is not clear whether the nose checkerboard was toned down for the raid as well.

## ■ N6812, FSL Stewart D. Culley, Special Flight, NS Felixstowe, United Kingdom, July 1917



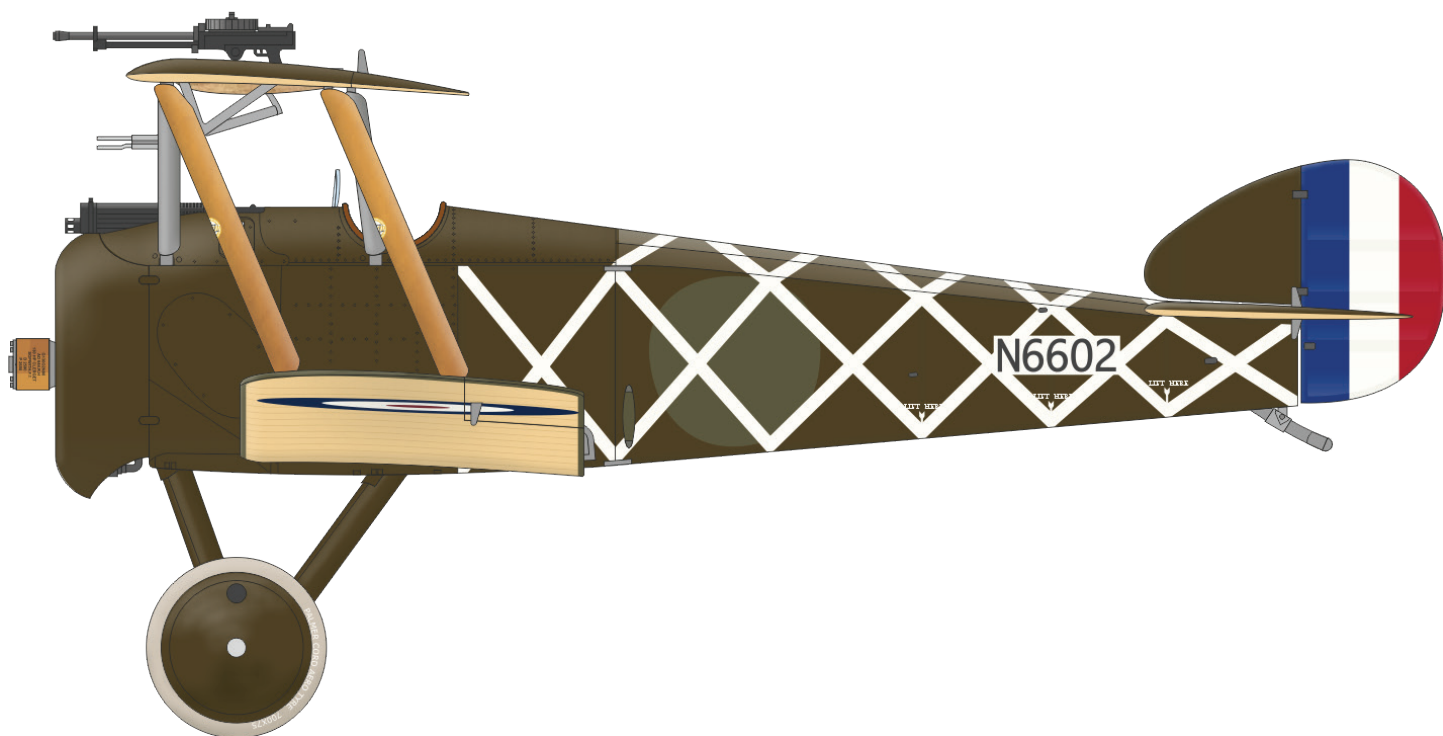
Stewart Douglas Culley was born on August 23, 1895, in Omaha as the son of an English father and a Canadian mother. After his studies in California and Vermont he joined RNAS in Ottawa on April 19, 1917. A month later he arrived in UK and after training he served at Calshot and Falmouth Naval Air Stations before he moved to Felixstowe. There he made the first successful take off from lighter H3 barge towed by a destroyer steaming at 36 knots. It happened on July 31, 1918 and he used N6812. On Sunday August 11, Culley was in his

Camel aboard a lighter towed by HMS Redoubt as a part of the Harwich Strike Force tasked with defending east coast of Britain. When a Zeppelin airship was spotted, Culley took off and it took him about an hour to reach his quarry and attack. One of his machine guns jammed, but he emptied the other one's magazine into the sky giant setting it afire. His victim was L53 and crew of 19 led by Kapitänleutnant Eduard Prölss died. Just prior to this event, N6812 was modified, sporting two Lewis machine guns mounted atop the

upper wing. The fuselage-mounted Vickers was removed and an Aldis gunsight added. Later, the aircraft served with No. 212 Sqn RAF. At the end of its service, it was presented to the IWM, where it is on display until today. Originally, the undersides were painted in light blue, since restoration the Camel sports the natural doped linen.



## ■ N6602, HMS Furious, April 1918

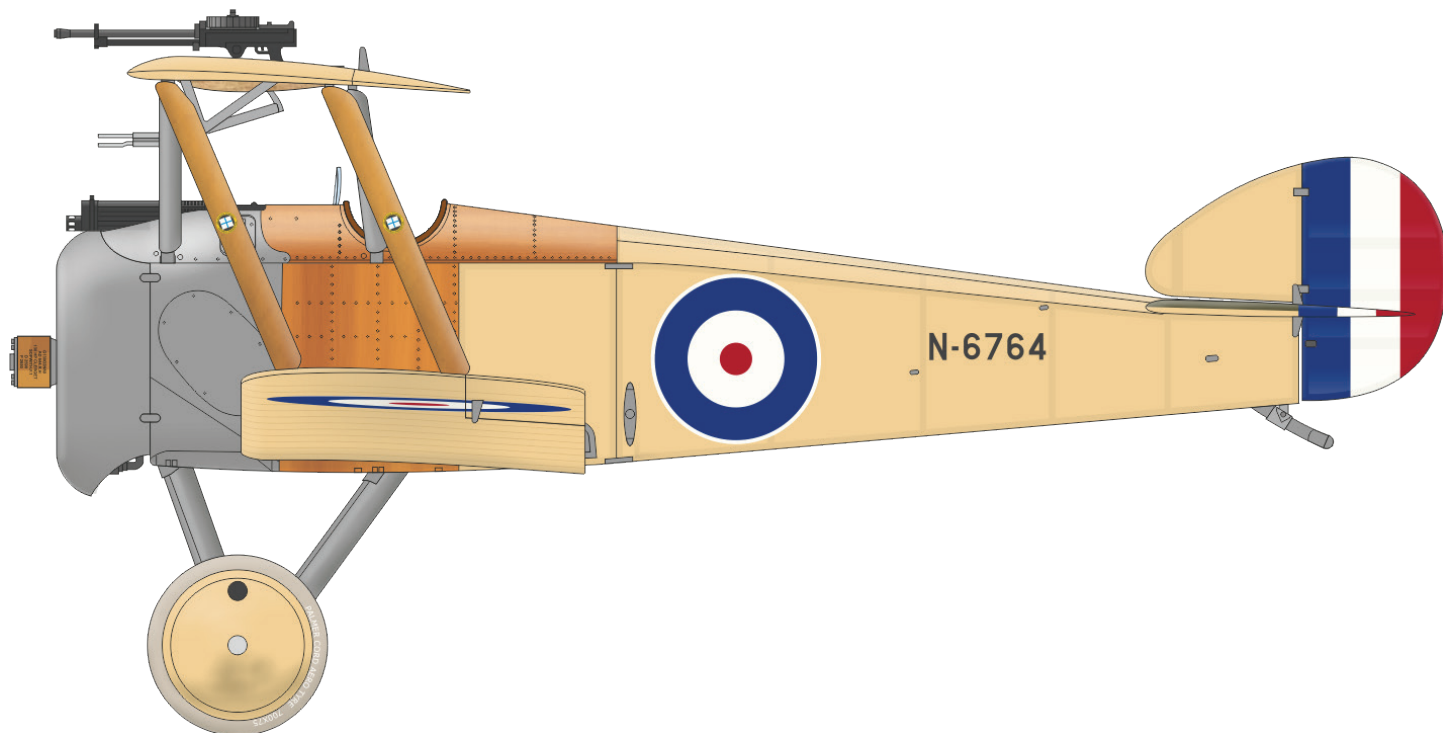


This 150hp Bentley BR.1 powered 2F.1 Camel was one of the 50 aircraft delivered by the Sopwith Aviation Company under production order contract Nos. A.S.762 and C.P.103733/17. It was delivered to AAP Brooklands on November 22, 1917 and initially served on HMS Nairana seaplane carrier from December 21 and HMS Lion battlecruiser from January 11, 1918. The aircraft

was then put into service with HMS Furious from April 6, 1918, but only for a brief period, as it was sent to HMS Glorious two weeks later. RAF Turnhouse and Donibristle were other places of service of this unusually marked "Ship's Camel". The reason for the white cross striping on the fuselage is not known, the fuselage roundel was overpainted by color which might be just fresh of

the same shade or slightly different one. As in the most cases it is not clear, whether the aircraft was finished in PC10 or PC12. Noteworthy is the dark staining on the bottom side of the fuselage in the area covered by linen. We believe it was made by the same color which was applied on upper sides.

## ■ N6764, HMS Lion, April–June 1918



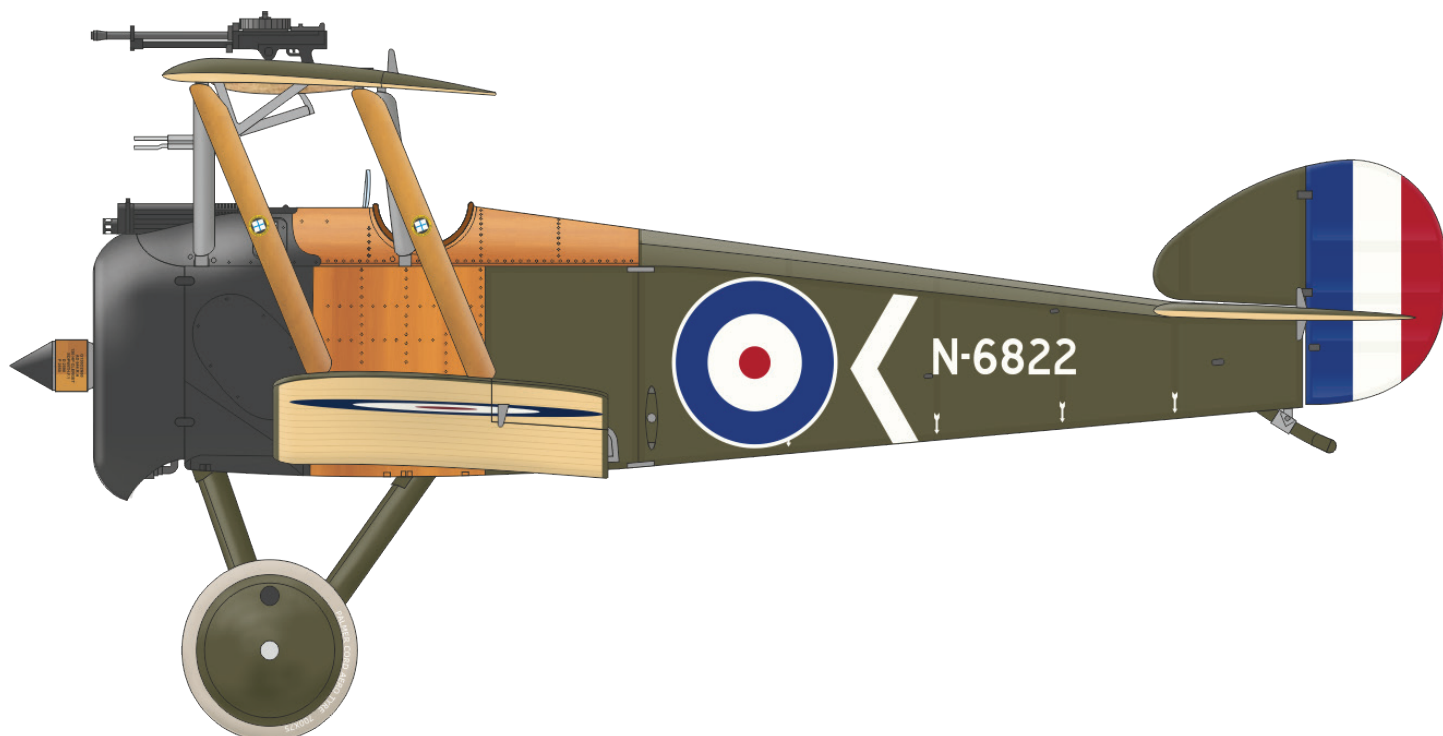
This Camel was manufactured by Sir William Beardmore & Co LTD in January 1917 and was finished in the standard colors. For whatever reason the fuselage and wings needed re-covering sometime in the period between April

and June 1918 and N6764 was photographed on board of HMS Lion in this appearance. The new cover was left in doped linen color, only the horizontal stabilizer kept its original camouflage and the tricolor on the elevator, which was the

typical feature of the aircraft manufactured by Sir William Beardmore & Co LTD company. The aircraft served also on the Donibristle and Rosyth air bases.



## ■ N6822, HMAS Sydney, mid 1918

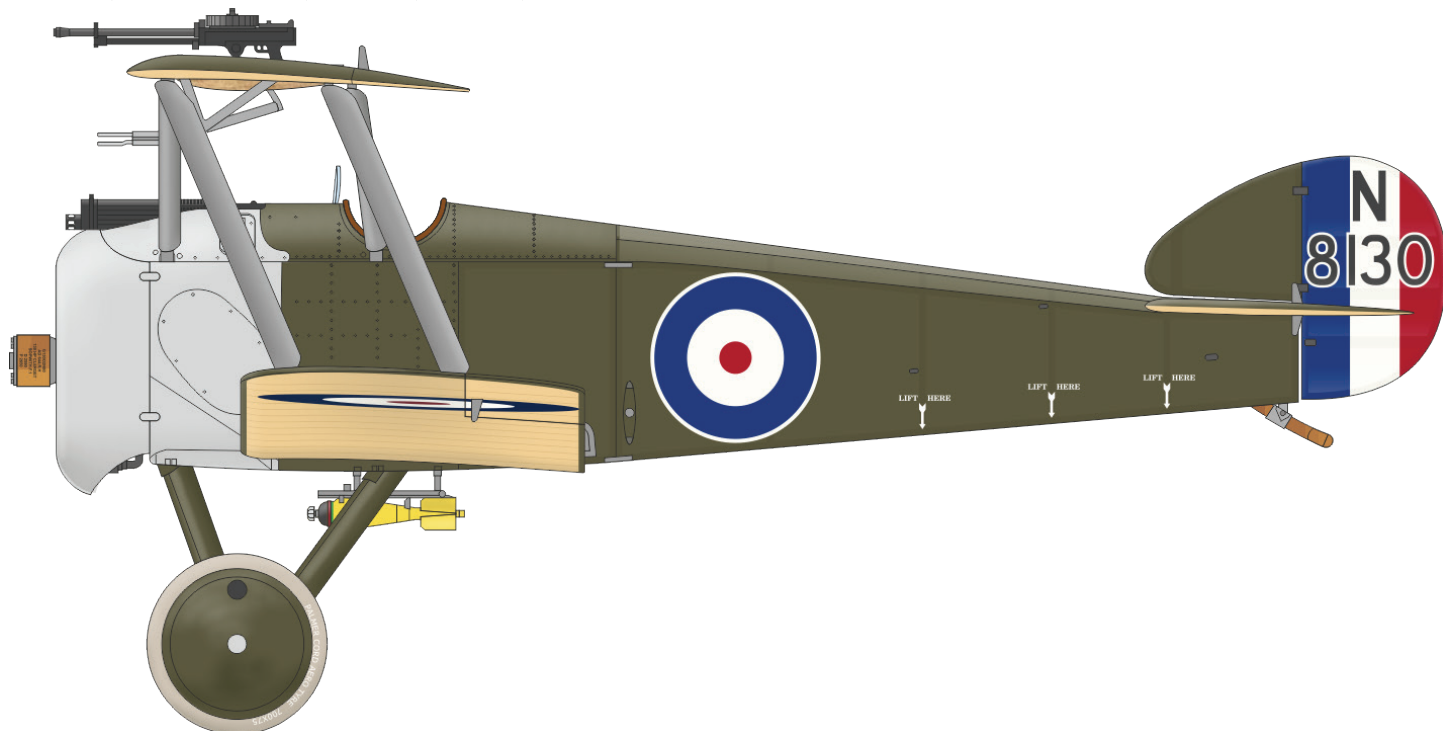


This "Ship's Camel" is one of those manufactured by Sir William Beardmore & Co LTD and sports the typical tricolor elevator, kind of a trademark of this company. It was a Bentley BR.1 powered

aircraft and was delivered to Aviation Acceptance Park in Renfrew on June 20, 1918. From there it was subsequently sent to HMAS Sydney light cruiser. There it served with several interruptions

for maintenance (or due to other reasons) at the mainland bases until November 21, 1918.

## ■ N8130, HMS Vindictive, Koivisto, Finland, October 1919



The N8130 was an aircraft manufactured by Hooper & Co Ltd and one of the 50 "Ship's Camels" from the penultimate order of this type under contract Nos. 38a/906/C947 & A.S.37354/18. As the first from this batch, it was originally intended as the presentation aircraft and was given the name Tamworth. It was sent aboard

HMS Argus on May 19, 1919, then to HMS Vindictive as one of the eight Camels sent to join the fighting against Russian Bolsheviks. There it was used in the fighter-bomber role. On return it served with No. 203 Squadron and served on board of HMS Argus again. The Tamworth inscription was painted on the starboard side of the fuselage, as

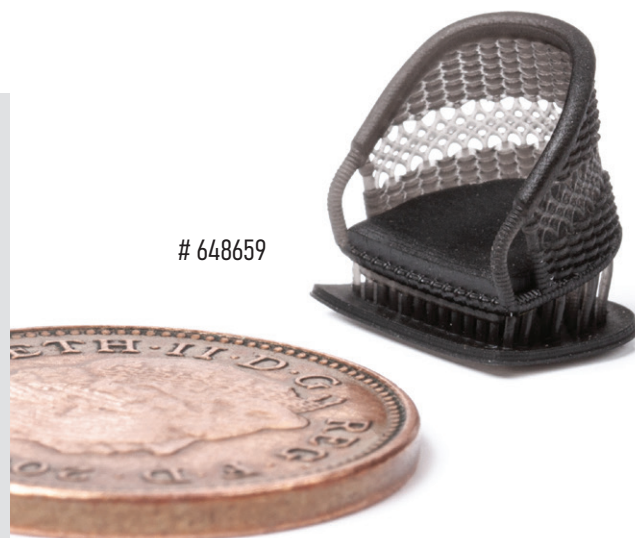
the photo shows. It is not known, whether it was on port side as well, but the decal sheet contains two inscriptions. Just in case ... There is also a stitched area on the starboard, probably a field repair of damage.



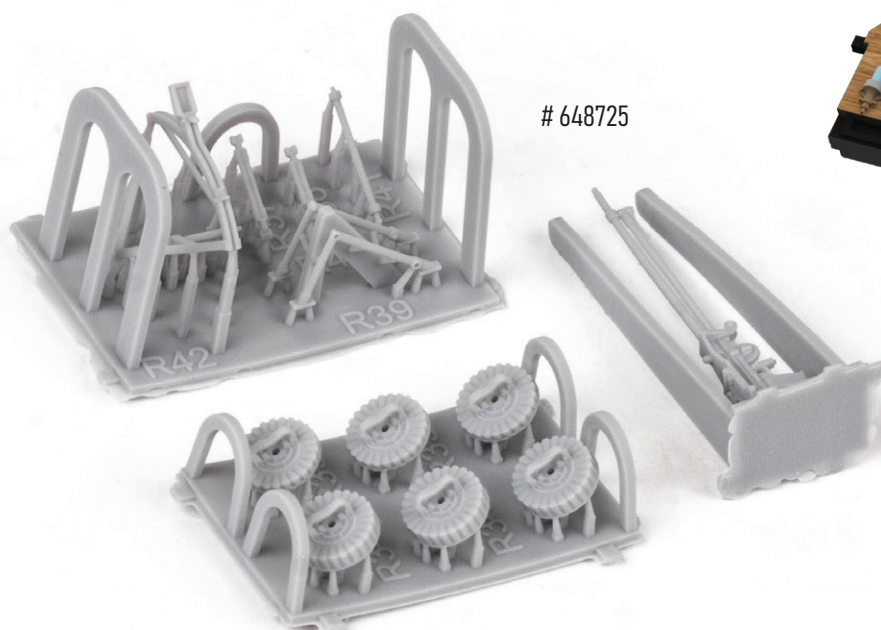
## Recommended: for Sopwith 2F.1 Camel 1/48

|          |                                                   |
|----------|---------------------------------------------------|
| FE1215   | Sopwith Camel seatbelts STEEL (PE-Set)            |
| 644116   | Sopwith Camel LööK (Brassin)                      |
| 648657   | Sopwith Camel wheels Type 1 (Brassin)             |
| 648658   | Sopwith Camel wheels Type 2 (Brassin)             |
| 648659   | Sopwith Camel seat PRINT (Brassin)                |
| 648660   | Sopwith Camel Vickers Mk.I gun (Brassin)          |
| 648661   | Sopwith Camel US Colt Vickers gun (Brassin)       |
| 648725   | Sopwith Camel 2F.1 Lewis gun PRINT (Brassin)      |
| 648674   | Sopwith Camel Rotherham air pumps PRINT (Brassin) |
| 648677   | Sopwith Camel Bentley engine PRINT (Brassin)      |
| 3DL48038 | Sopwith Camel SPACE (3D Decal Set)                |

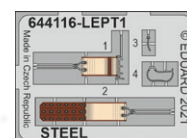
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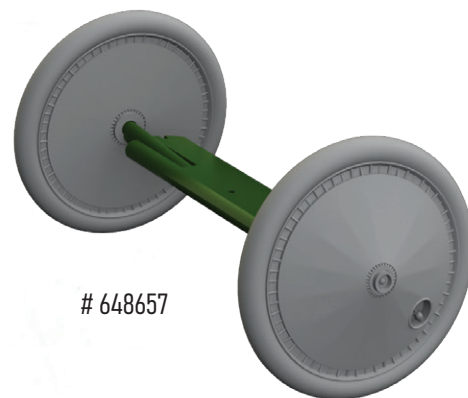
# 648725



# 644116



# 648657



## OVERTREES

#82173X

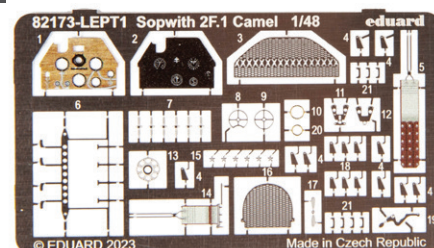
Sopwith 2F.1 Camel  
1/48

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## OVERLEPT

#82173-LEPT

Sopwith 2F.1 Camel PE-Set  
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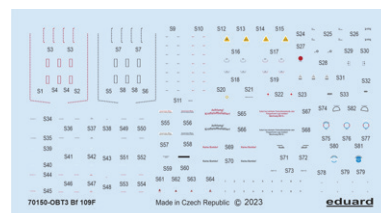
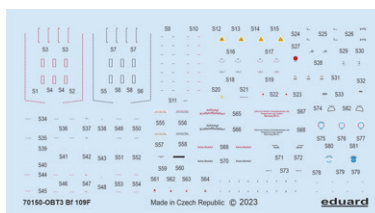
# WUNDERSCHÖNE NEUE MASCHINEN pt.I

#2142

The Limited edition of the kit of the famous German WWII fighter aircraft Bf 109F in 1/72 scale. The kit offers aircraft of F-2 and F-4 versions. Marking selection covers all fronts of WWII where these "Friedrichs" were fighting.

## DUAL COMBO 1/72

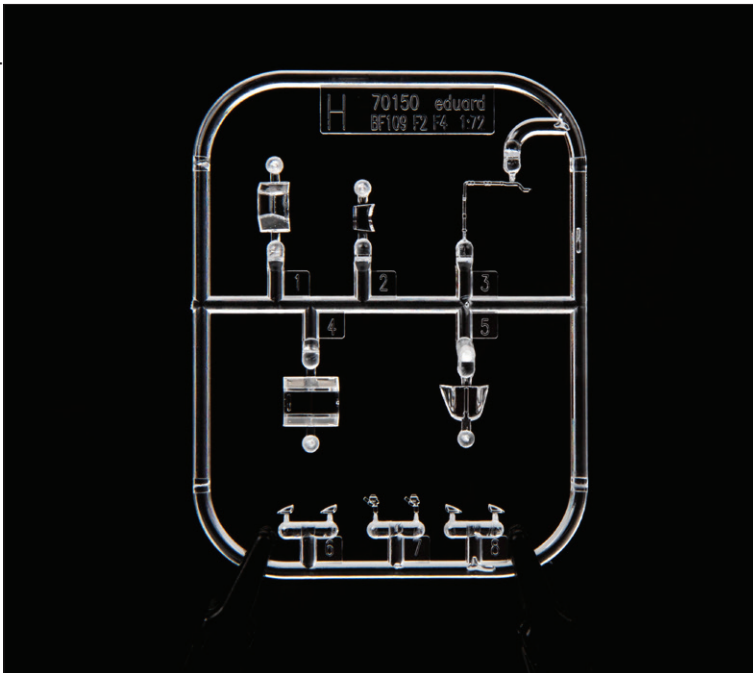
- plastic parts: Eduard
- marking options: 14
- decals: Eduard
- PE parts: yes, pre-painted
- painting mask: yes
- resin parts: no

[Product page](#)


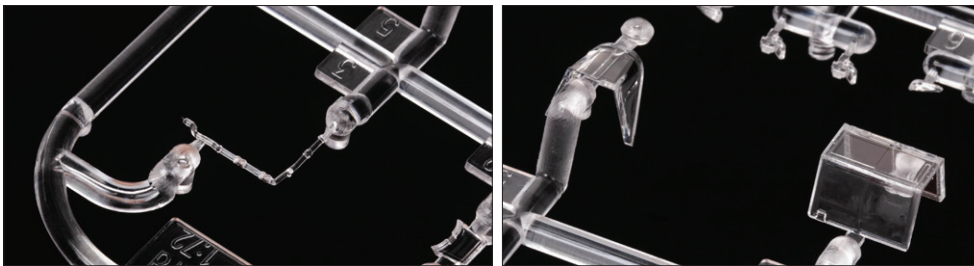


# Bf 109F-2 and F-4 - Sprues detail

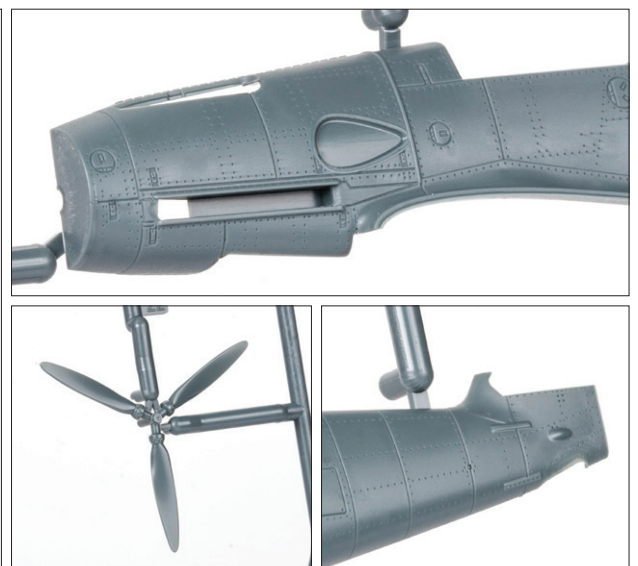
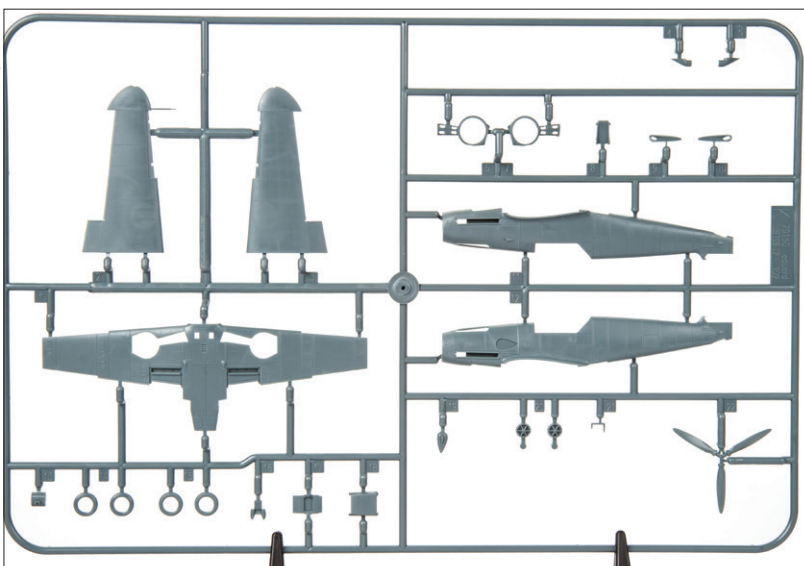
Sprue H



Sprue W

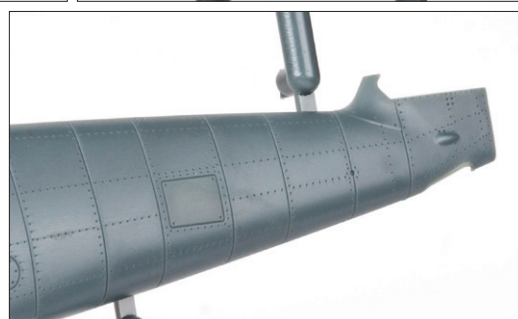
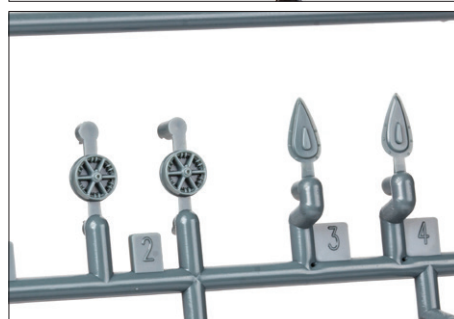
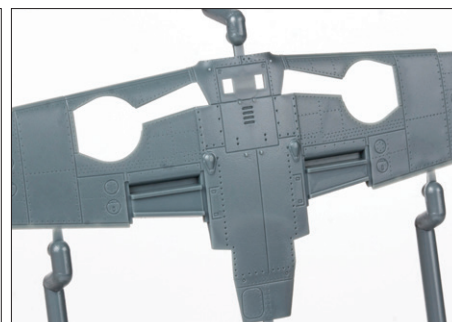
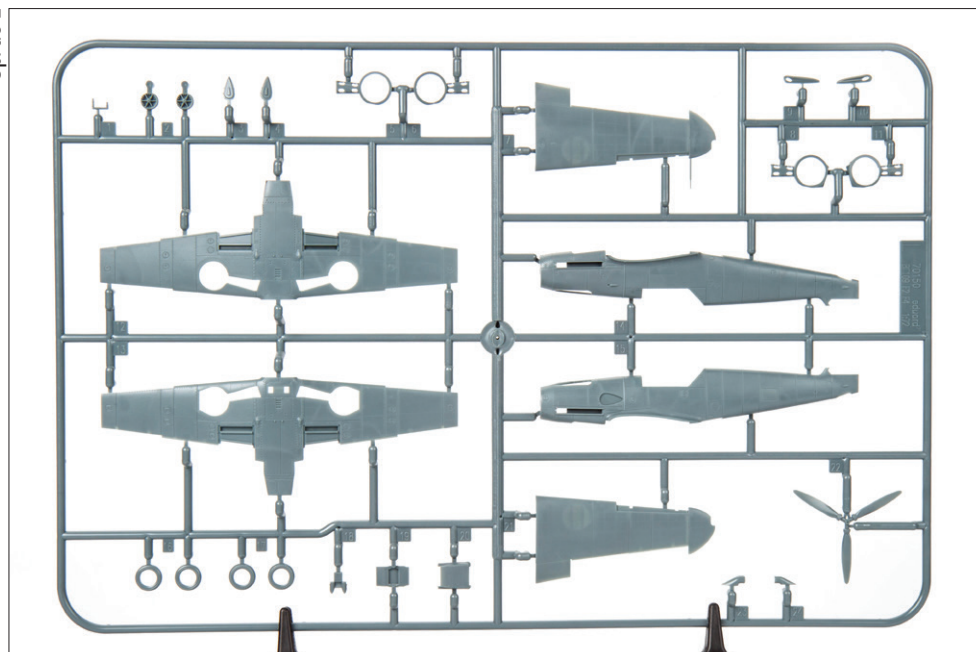


Sprue K

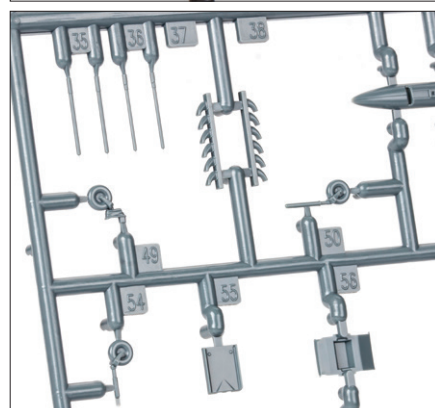
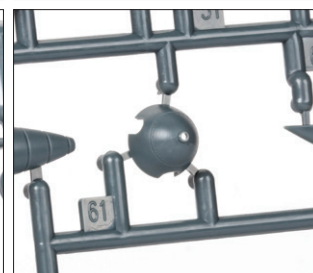
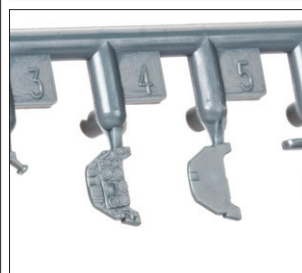
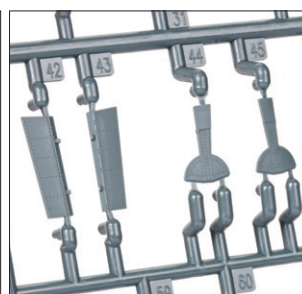
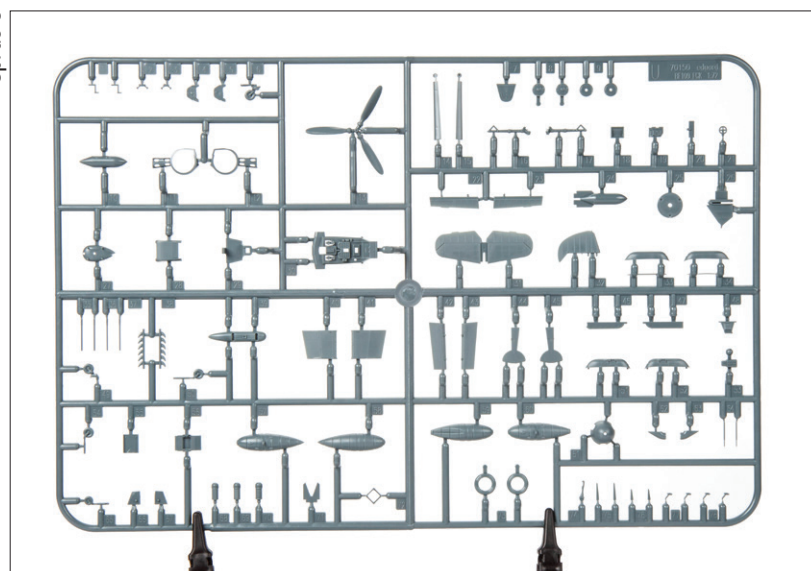




Sprue L



Sprue U





BF 109F-2 & BF 109F-4

# WUNDERSCHÖNE NEUE MASCHINEN

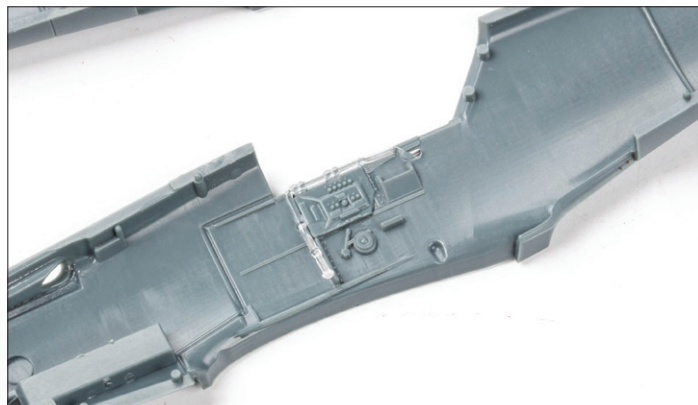
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- Pt.1 -

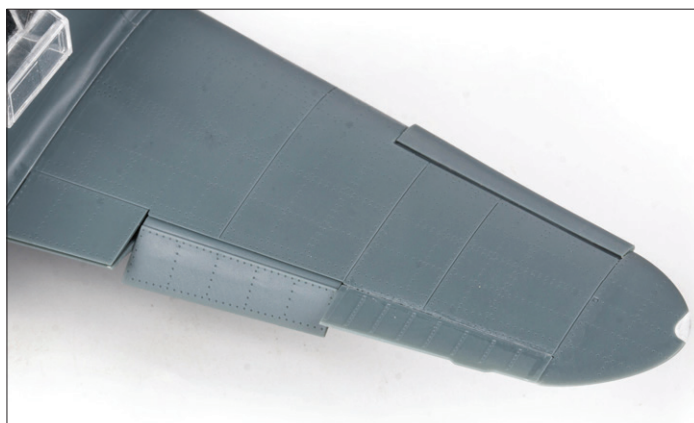
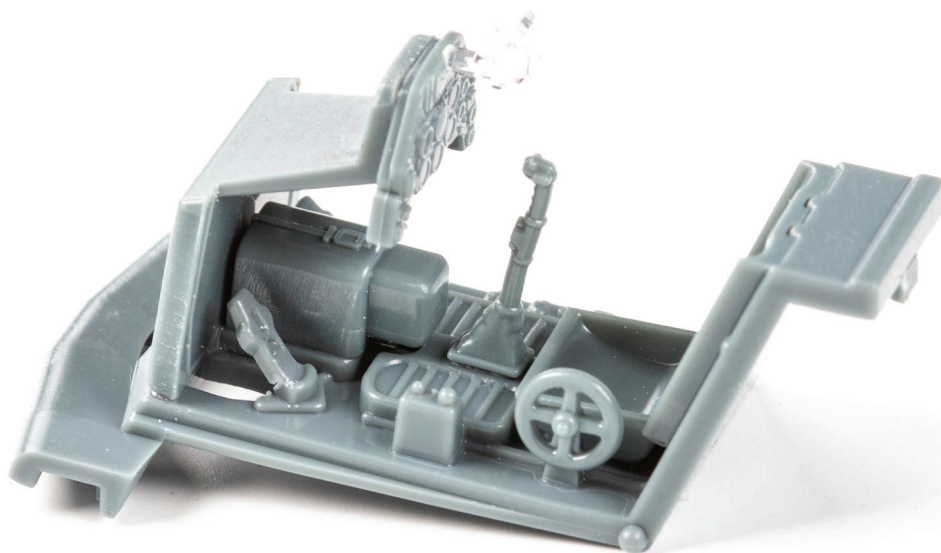
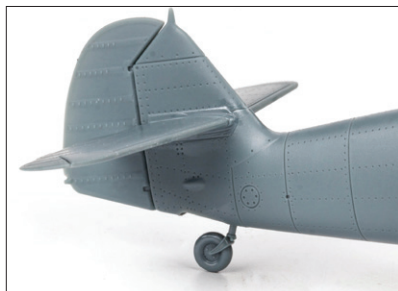
TEST BUILD



BUILD BY **JAKUB NADEMLEJNSKY**

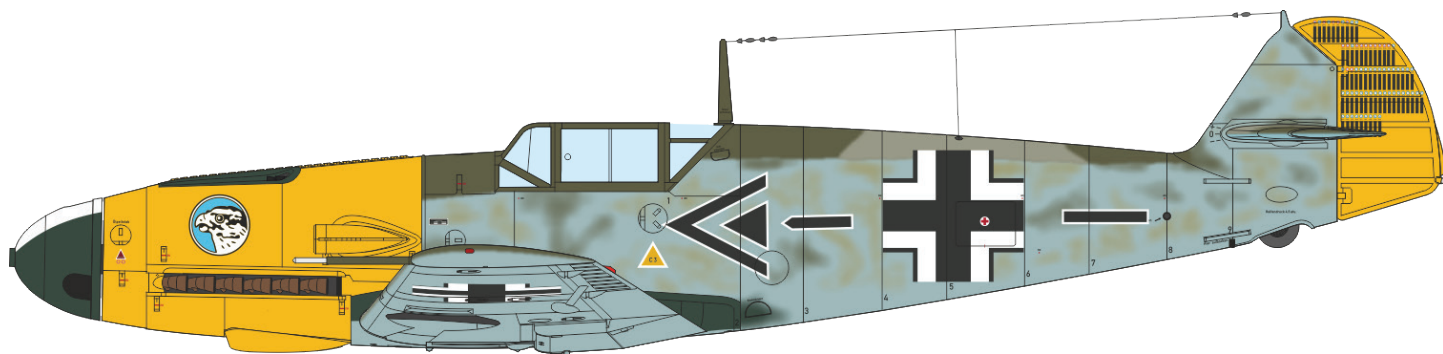








## ■ Bf 109F-1, WNr. 5628, Obst. Werner Mölders, CO of JG 51, Krefeld, Germany, June 1941

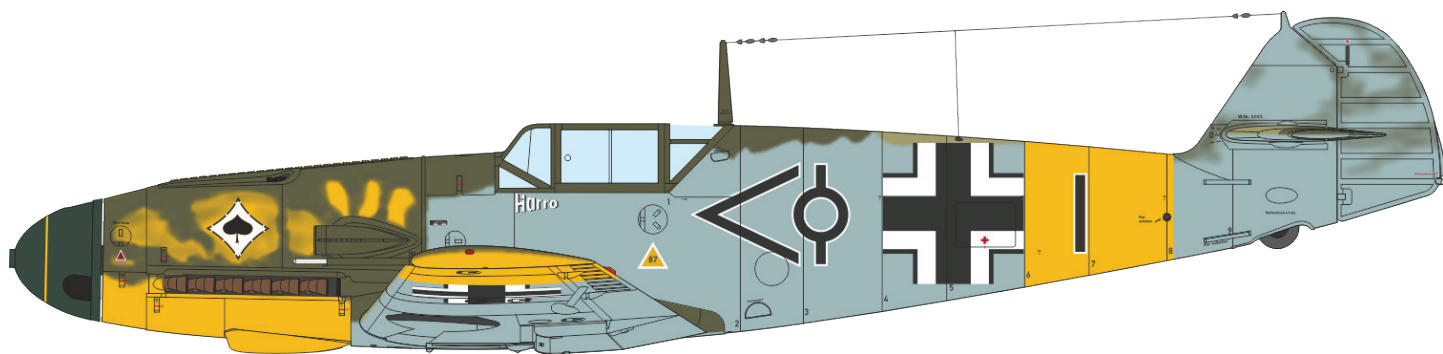


Werner Mölders, nicknamed Vati (Daddy), gained the ace status in the Spanish Civil War where he developed finger-four formation tactics. He was the first pilot to reach the mark of one hundred enemy kills. In June 1940, as CO of III./JG 53, he was shot down by a French fighter and was captured. A month later he was appointed commander of JG 51 and successfully led it in combat against both the RAF and the Soviet Air Force. Due to the fears of Nazi leadership regarding

his possible capture or killing, he was withdrawn from combat operations and appointed Inspector of Day Fighters in August 1941. He perished in the crash of a Heinkel He 111 in a storm near Wrocław on November 22, 1941. He was flying as a passenger to Berlin for the state funeral of Ernst Udet. His score stopped at 115 victories of which he scored 14 in the Spanish Civil War and 68 in fighting on the Western front in Europe. For his achievements, he was awarded the Knight's

Cross with Oak Leaves, Swords and Diamonds. The illustrated aircraft was flown by Werner Mölders in the summer of 1941 during a downtime as the unit prepared for Operation Barbarossa (the attack on the Soviet Union). The aircraft carried a camo scheme from the first half of 1941, as the top surfaces were sprayed RLM 71/02 and the bottom ones in RLM 65. The engine cowl sports the unit marking of JG 51, and the rudder displays the pilot's score.

## ■ Bf 109F-2, WNr. 8085, Lt. Jürgen Harder, Stab III./JG 53, Sobolewo, Germany, June 1941

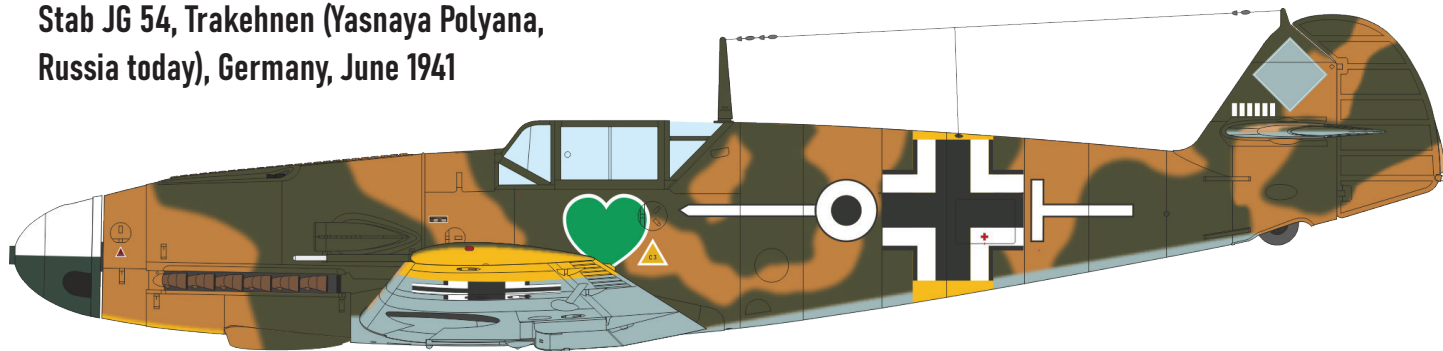


Jürgen Harder, brother of the better known Harro Harder, achieved his first kill on June 22, 1941, the day Operation Barbarossa began. He joined the Luftwaffe in 1939 and served in 7./JG 53 from early 1941, then became a staff officer in III. Gruppe. In April 1942 he took command of 7./JG 53 in Africa and in February 1944 became commander of I./JG 53 in Italy. Until the

end of the war he claimed further 63 kills both on the Eastern and Western fronts. On February 1, 1945, he was decorated with the Knight's Cross with the Oak Leaves. His luck ran out on February 17, 1945, when, due to the engine failure of his Messerschmitt Bf 109G-14, he crashed to death nearby the town of Strausberg. Harder's WNr. 8085 later served with

4./JG 51, Jagdgruppe West, underwent an overhaul and its version designation was changed to F-4. It was destroyed on December 2, 1943, in Southern France when it was allocated to Jagdgruppe Süd, commanded by Heinz Bär. In its cockpit, Uffz. Alexis Prinz zu Bentheim und Steinfurt was shot down in combat with American airmen.

## ■ Bf 109F-2, WNr. 8235, Hptm. Werner Pichon Kalau vom Hofe, Stab JG 54, Trakehnen (Yasnaya Polyana, Russia today), Germany, June 1941



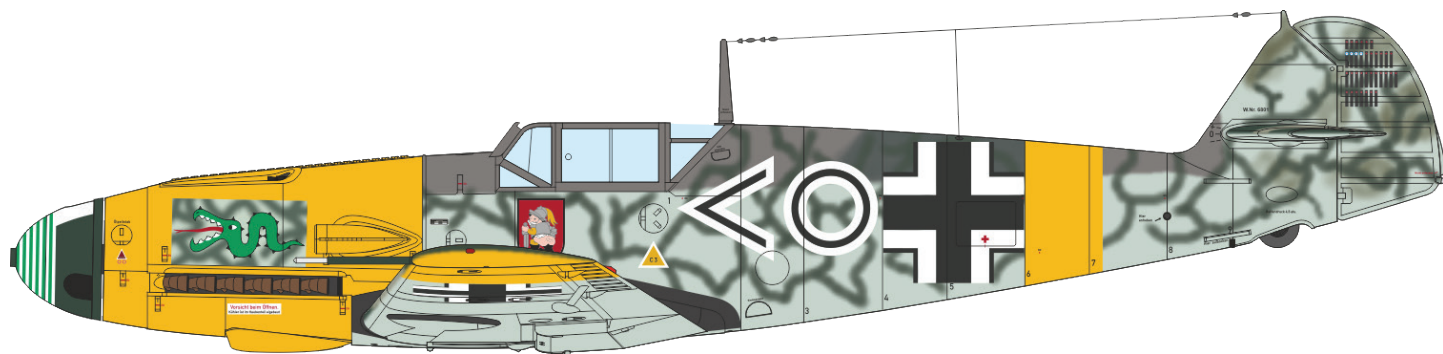
Werner Pichon-Kalau vom Hofe (1917–1999) was a pre-war member of I./ZG 1 and early after start of conflict he served with I./JG 3. After service with III./JG 51 he became in August 1940 Trautloft's Geschwaderadjutant in JG 54. Later on he acted in JG 54 also as Technischer Offizier and in early

1942 became commander of 7./JG 54. Later in the war he was a member of several fighter command headquarters in Western Europe. He was credited with 21 victories. He achieved his first successes on the Eastern front on June 25 when he shot down two twin-engine bombers

as his 7th and 8th victories. His aircraft, which this pilot has captured on color footage, bears the non-standard designation, which relate to his position as technical officer. The airplane was camouflaged on the upper surfaces in brown and green paints.



## ■ Bf 109F-2, WNr. 6801, Lt. Detlev Rohwer, Stab I./JG 3, Byelaya Tserekev, Soviet Union, August 1941

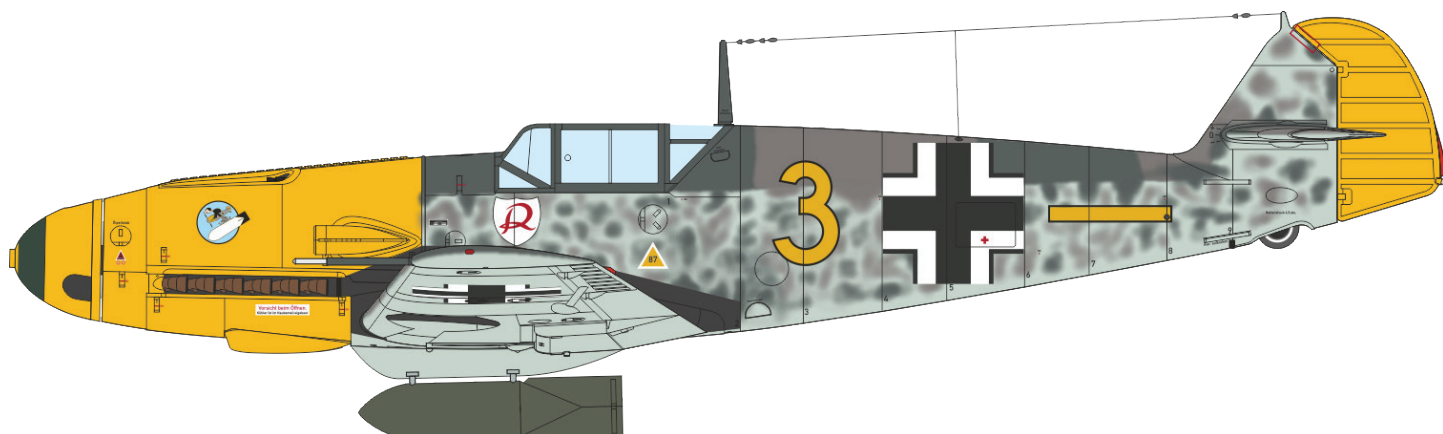


Rohwer's fighter career began in September 1939 at the Stab I./JG 3 and the first victory achieved June 6, 1940. He served in the ranks of JG 3 throughout the entire war. He was several times shot down and was several times severely wounded, but he always recovered and carried on flying. Except for when his career, and ultimately his life, ended on March 29, 1944, when his Bf 109G-6 was hit by defensive fire from a B-17. He had to set down, and P-38s in the area were

bent on finishing him off. During their attack, Rohwer was seriously wounded. His lower limbs had to be amputated, but he nevertheless succumbed to his injuries the next day. He shot down a total of 38 enemy aircraft and was awarded the Knight's Cross. The illustrated aircraft was flown by Detlev Rohwer during the summer of 1942. The wing camouflage was made up of RLM 70/02 while the fuselage had already been sprayed in RLM 74/75. The sides of the fuselage were

covered by irregular snakes of RLM 70. The aircraft markings were supplemented by the typical yellow quick identification aids carried by aircraft serving in the East, a fuselage band, wingtips and engine cowl. The side of the cowl sports the Tatzelwurm, the unit marking of I./JG 3 and Rohwer's personal emblem of the Götz von Berlichingen knight below the cockpit. The right side probably carried the Coat of Arms City of the City of Kiel, the hometown of Detlev Rohwer.

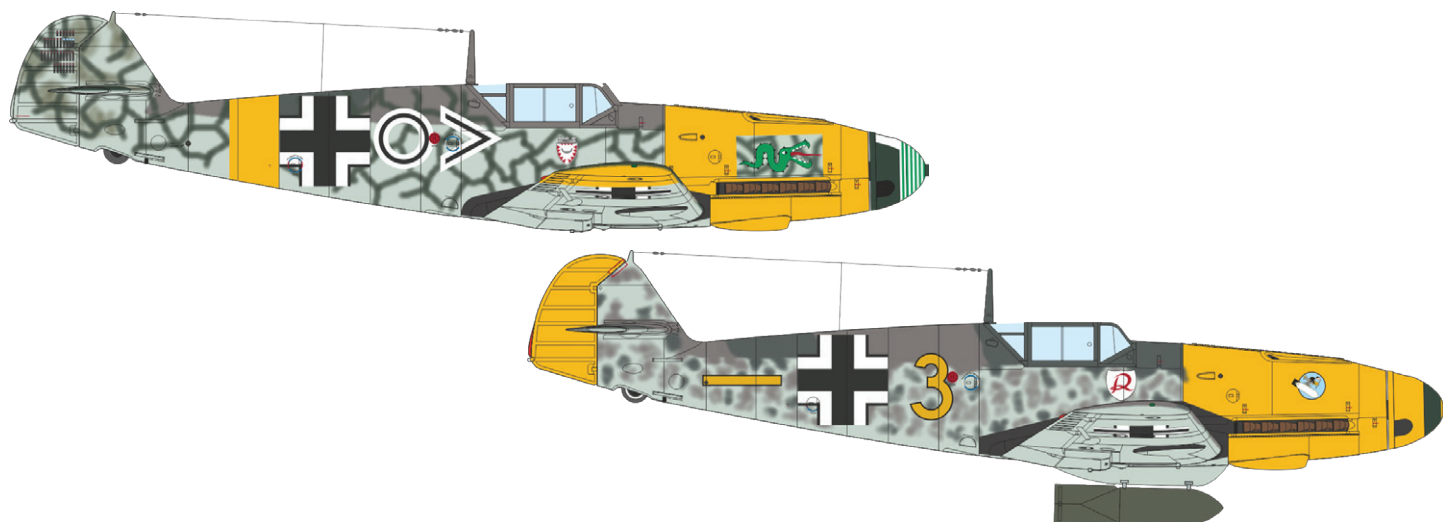
## ■ Bf 109F-2/B, Uffz. Richard Übelbacher, 6.(Jabo)/JG 2, Abbeville-Drucat, France, Summer 1941



Austrian Richard Übelbacher was born in 1918 in Innsbruck and after pilot and fighter training he was assigned to 6./JG 2 in the summer of 1940. Its commander was Oblt. Frank Liesendahl, who later became the key officer for the deployment of JG 2 fighter aircraft in the bomber role, primarily against shipping targets. Übelbacher saw combat

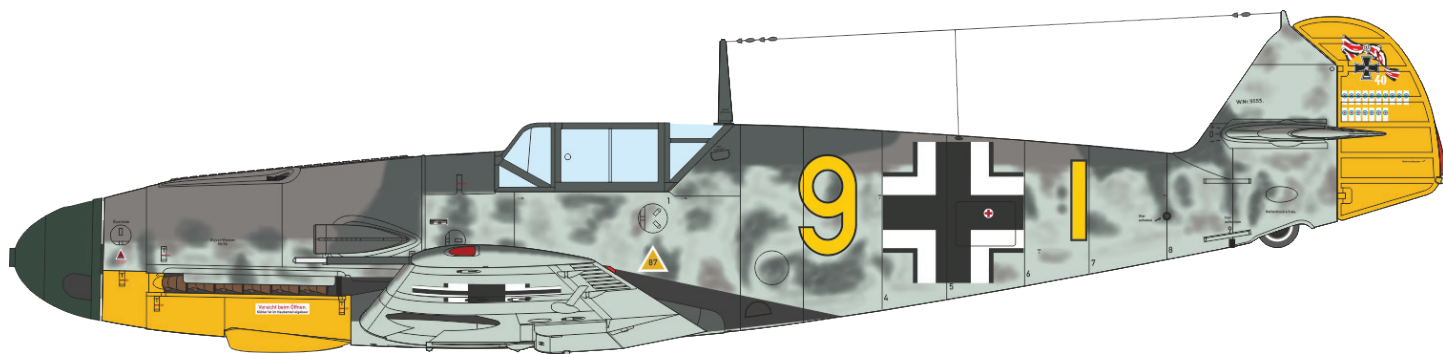
during the Battle of Britain and achieved his first victory in August 1941. He also achieved an aerial victory during the fight against the Allied landing at Dieppe. At that time, II./JG 2 had already been rearmed to the Fw 190A type. In the autumn of 1942, he moved with his unit to Tunisia and was by then one of the most experienced veterans. He

had a total of seven or eight victories to his credit. Übelbacher was killed on March 3, 1943, south-east of Ferryville when he was accidentally shot down by a pair of I./JG 53 pilots with Messerschmitt Bf 109 fighters during a landing maneuver. Richard Übelbacher was buried at Borj Cédria and was posthumously promoted to the rank of Leutnant.





## ■ Bf 109F-2, WNr. 9553, Oblt. Siegfried Schnell, CO of 9./JG 2, Théville, France, November 1941

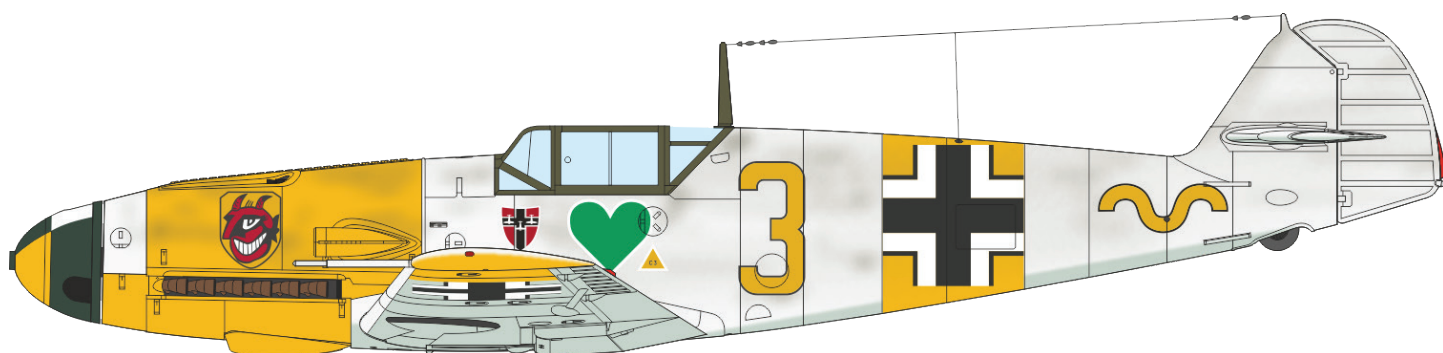


Siegfried "Wumm" Schnell, a native of today's Polish Sulecin (then Zeilenzig in Germany) joined the ranks of the Luftwaffe in 1936 and at the beginning of the Second World War he served with 4./JG 2. His first kill was in combat over France on May 14, 1940, others followed over Britain and against English and American pilots over western

Europe. After being assigned to JG 54, he first served with its III. Gruppe and on February 1, 1944, he was appointed CO of IV. Gruppe. While serving in this function, he was shot down over Narva on February 25, 1944, by a Soviet fighter, this proving to be a fateful encounter. For his combat results, he was awarded on July 9, 1941, the Knight's

Cross with Oak Leaves. He downed 93 enemy aircraft in WWII. Siegfried Schnell's aircraft was camouflaged in the standard Luftwaffe fighter scheme using RLM 74/75/76. Both sides of the fin were decorated with the Knight's Cross with Oak Leaves and markings symbolizing his victories.

## ■ Bf 109F-2, 9./JG 54, Siverskaya, Soviet Union, December 1941

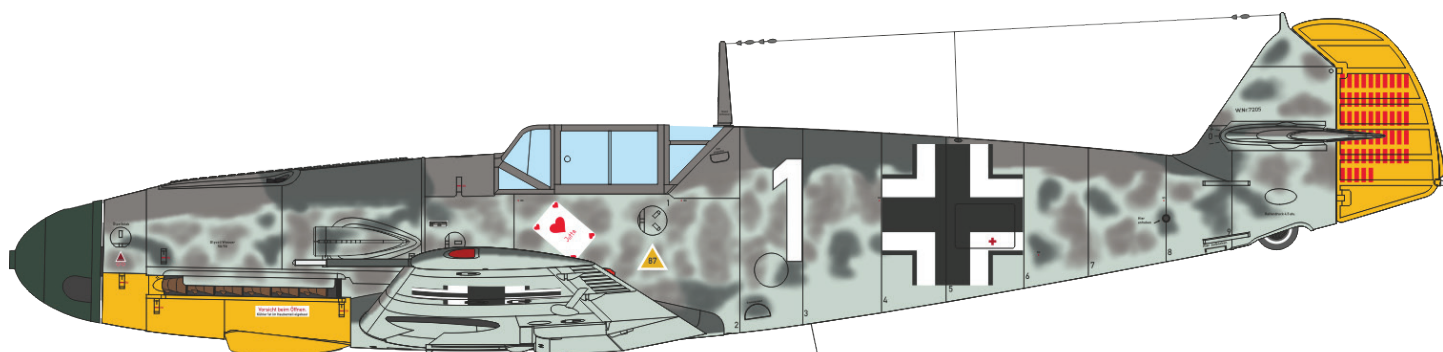


Oblt. Hans Ekkehard Bob was the commanding officer of 9./JG 54 from November 1940 to July 1943. He joined the Luftwaffe in 1936 and in July 1939 was assigned to 3./JG 21 (later 9./JG 54). Bob achieved his first victory on May 10, 1940, in combat with a Belgian Gladiator. In August 1943 he was appointed CO of IV./JG 51 on the Eastern Front and from May 1944 led II./JG 3 in the Defense of the Reich and Normandy. From

August he led the operational training unit II./EJG 2 and he ended the war as a member of Jagdverband 44, unit equipped with the Me 262 Schwalbe. Over the course of some 700 sorties, he shot down sixty enemy aircraft, and was awarded the Knight's Cross. After the war, he first worked on a farm, later formed his own transportation company and in 1956 he formed the world-famous company BOMAG. The illustrated

aircraft was taken over from 6./JG 54 and it was flown by Bob's Staffel in the winter of 1941/42 in the northern section of the Eastern Front, where in an effort to better hide their aircraft when on the ground, support personnel sprayed them in a washable white paint on the upper surfaces. The aircraft carried the typical identifiers carried on the Eastern Front – a yellow fuselage band and yellow wingtips.

## ■ Bf 109F-4, WNr. 7205, Oblt. Josef Priller, CO of 1./JG 26, St. Omer-Arques, France, October 1941



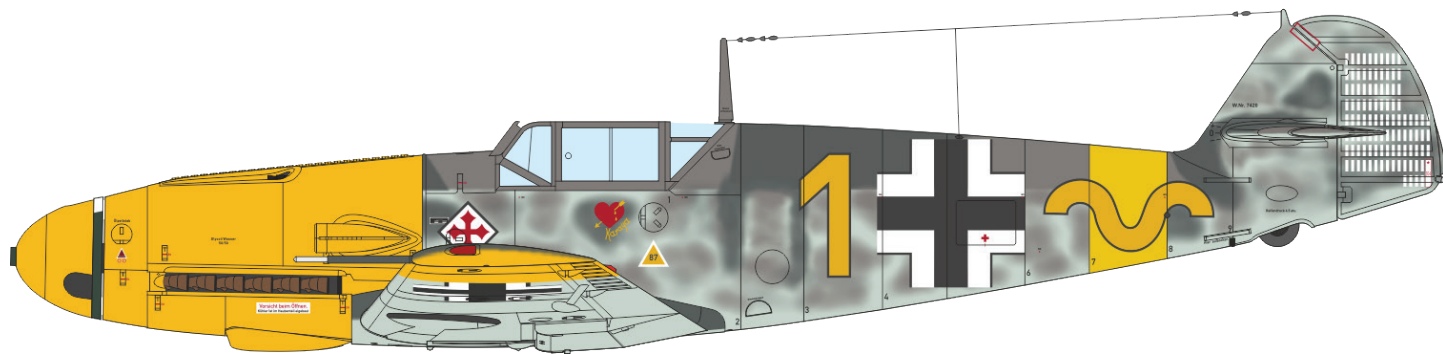
This aircraft was produced in August 1941 by the WNF and became the personal mount of Josef "Pips" Priller, who was commander of 1./JG 26 "Schlageter" at that time. Rudder shows his 55th victory, which was achieved on October 21, 1941. On both sides of the fuselage, a heart card symbol with the name of Priller's wife Jutta was painted under the cockpit. Priller began his military career in the infantry in 1935 and joined

the Luftwaffe a year later. After fighter training, he was assigned to Stab I./JG 51 in November 1938 and transferred to I./JG 71 (later II./JG 51) in July 1939. In October 1939 he became CO of 6./JG 51 and recorded his first two aerial victories on May 28, 1940. By October he had increased his number of victories to 20 and was awarded the Knight's Cross. In November 1940 he was transferred to JG 26 and became CO of 1. Staffel, which he led

for a year. After achieving his 58th victory he became CO of III./JG 26. During 1942 he achieved a further 23 victories and in January 1943 became commander of JG 26. His last victory, the 101st one, came in October 1944 and in early 1945 Priller became Inspector of Day Fighter Units in Western Europe. He attained the rank of Oberst and was awarded the Oak Leaves and Swords in addition to the Knight's Cross.



### ■ Bf 109F-4/Z, WNr. 7420, Lt. Hermann A. Graf, CO of 9./JG 52, Kharkov-Rogan, Soviet Union, May 1942

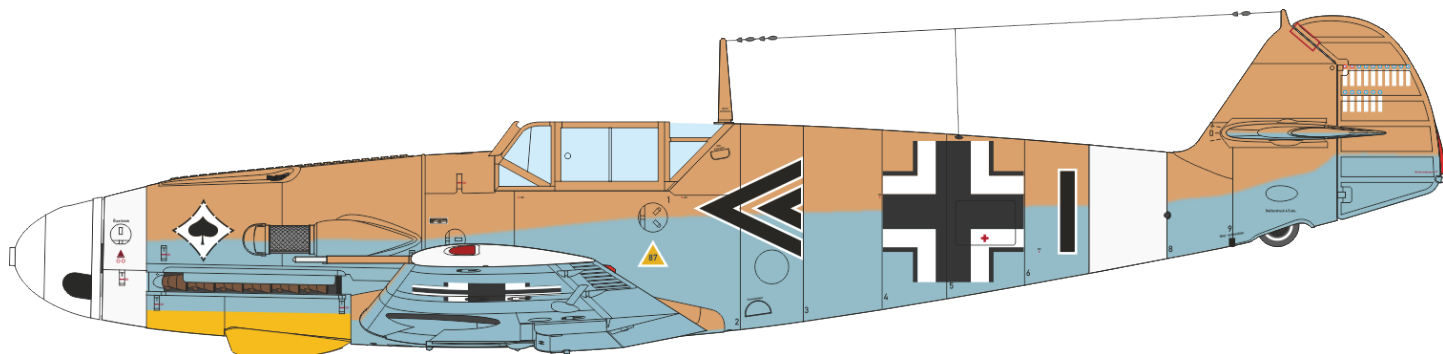


Hermann Anton Graf was born on October 24, 1912. He trained as a locksmith and was a keen football player in his youth. Later he took up sailing and entered the army in 1939. In the spring of 1940, he served in JG 51 and participated in the Battle of France. In April 1941, he fought over Greece and Crete, but did not record any victories during this period. His first kill came on August 4, 1941,

near Kiev and things changed. At the end of January 1942, he received the Knight's Cross for 45 kills, in May 1942 he achieved his 100th aerial victory and received Oak Leaves and Swords in addition to the Knight's Cross. He was the fifth in line of pilots to be awarded the Diamonds to the Knight's Cross with Oak Leaves and Swords on September 29, 1942. Graf became part of propaganda

campaigns, even a member of the Luftwaffe football team. At the end of the war, he was leading JG 52 and retreated with the unit from East Prussia, through Silesia and into Bohemia. He surrendered on May 8, 1945, in Písek (South Bohemia) to the Americans. They promptly handed him over to the Russians and Graf spent more than four years in captivity.

### ■ Bf 109F-4/Trop, Maj. Erich Gerlitz, CO of III./JG 53, Martuba, Libya, May 1942

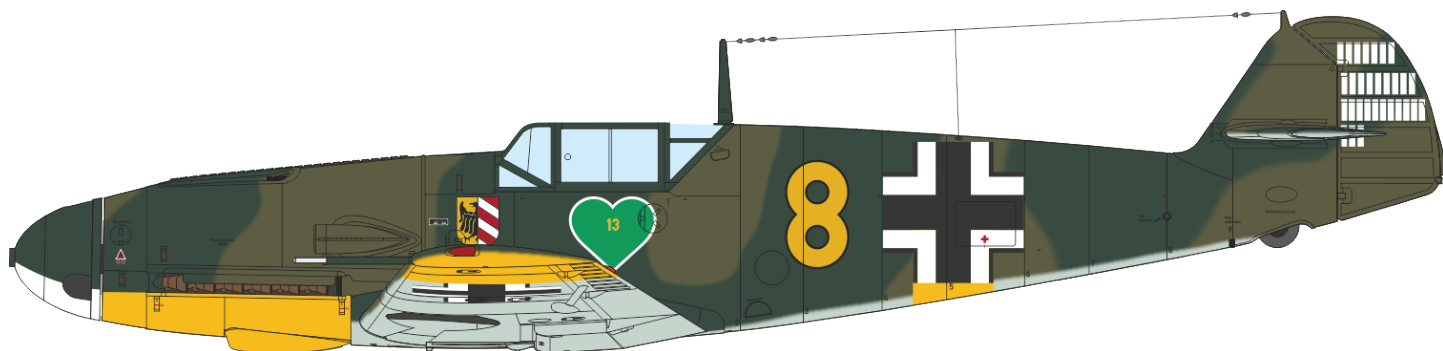


Austrian Erich Gerlitz graduated from the military academy in Wiener Neustadt in 1935 and became commander of Jagdstaffel 5 of the Austrian Jagdgeschwader II. After the Anschluss of Austria he became commander of 3./JG 135 (later 3./JG 51). In March 1940, he was appointed commander of 7./JG 2 and after several other posts, in April 1941 he became CO

of 2./JG 27. He served with Jagdgeschwader 27 during the following year, briefly serving as commander of 7. Staffel and in December 1941 was appointed CO of II./JG 27, which was then fighting in Africa. In May 1942, after achieving 15 victories, he became commander of III./JG 53 "Pik As", which was operating in the same theatre of operations. He won three more victories with this unit.

His personal aircraft was apparently retained from his previous posting. He led the unit until October 1942, after which he served for some time as part of the Luftwaffe HQ branch in Romania. In January 1944 he returned to combat as commander of I./JG 5, which was then based in Bulgaria. After moving to Western Europe, he was killed on March 16, 1944, in a dogfight with a P-47.

### ■ Bf 109F-4, Lt. Walter Nowotny, 3./JG 54, Krasnogvardeysk, Soviet Union, July 1942



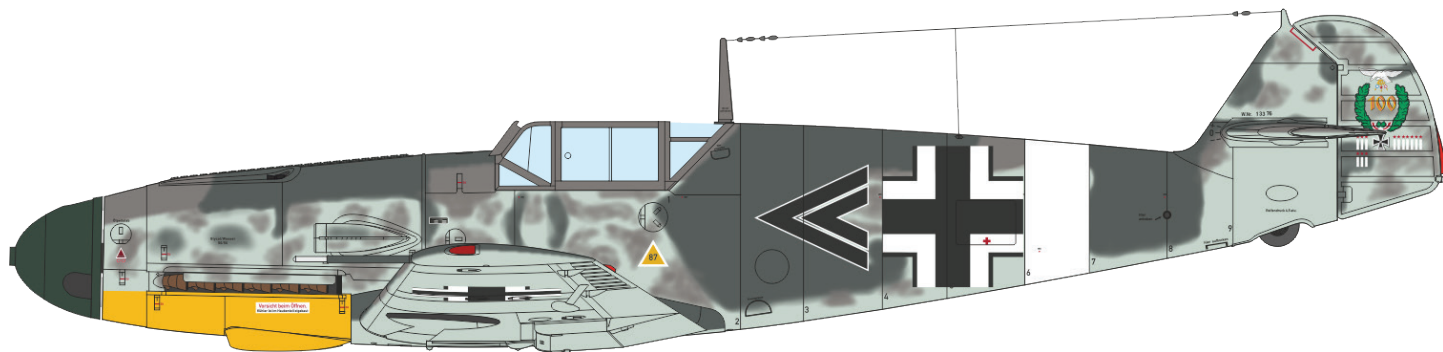
An Austrian with Czech ancestry, Walter "Nowi" Nowotny came from Gmünd near the border with Czechoslovakia. He joined the Luftwaffe in October 1939 and was assigned to 9./JG 54 in February 1941, shortly after which he was transferred to Stab Erg. JGr. 54. With this training part of JG 54 he achieved his first victory in Baltic on July 19, 1941. In March 1942 he was transferred to 3./JG 54 and by the beginning of August he had achieved over 40 victories with this unit. After

recovering from wounds he suffered, he became commander of 1./JG 54 in October 1942 and in August 1943 was appointed commander of the entire I./JG 54. Walter Nowotny was a holder of the Knight's Cross with Oak Leaves, Swords and Diamonds, and shot down 258 enemy aircraft over the course of 442 combat sorties. He was killed in combat with American escort fighters near an airfield at Hesepe on November 8, 1944, when flying his Me 262 Schwalbe. The aircraft

carried a non-standard scheme consisting of two greens on the upper surfaces, probably RLM 70 and RLM 71, typical for JG 54. The lower surfaces remained in RLM 76. The wingtips were painted in RLM 04 yellow on the lower surfaces, which was an identification mark of aircraft serving on the Eastern Front. The port and starboard wheel wells have different designs. The fuselage number is painted on the undercarriage legs.



### ■ Bf 109F-4, WNr. 13376, Hptm. Heinz Bär, CO of Stab I./JG 77, Comiso, Sicily, July 1942

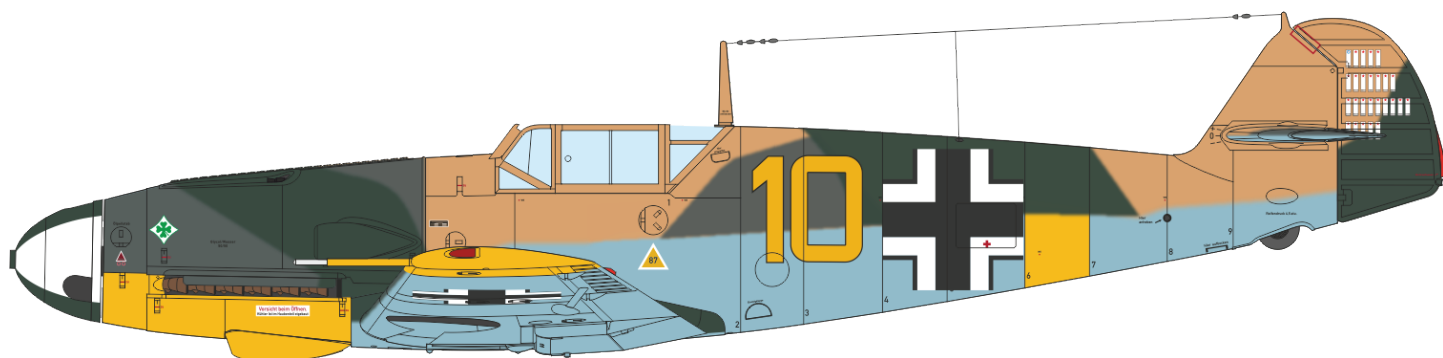


Heinz "Pritzl" Bär successfully fought over all major battlefields of World War II. He first served in the Luftwaffe in the 1930s as a mechanic but aspired to become a fighter pilot. Despite opposition from his superiors, he got into flight training and became a Ju 52 transport pilot with I./JG 51. With this unit he was unofficially trained on the Bf 109, which had to be retroactively legalized. He achieved his first victory in September 1939

and by April 1945 had scored 220 more successes. He was awarded the Knight's Cross with Oak Leaves and Swords. After a previous command of 12./JG 51, he was appointed commander of I./JG 77 in the Crimea in May 1942. He then successfully led this unit for a year in the Mediterranean and Africa. At the end of the war he was in the rank of Oberstleutnant in command of the elite JV 44 armed with Messerschmitt Me 262s. After the war

he continued to fly sport planes but was killed on April 28, 1957, during an air show demonstration of extremely slow flight in an LF-1 Zaunkönig. The Bf 109F-4 carried a classic Luftwaffe scheme comprised of RLM 74/75/76. Previous marking was oversprayed in a dark color, probably RLM 70. The white fuselage band identified aircraft fighting in the Mediterranean, but in this case, wingtips were not painted white.

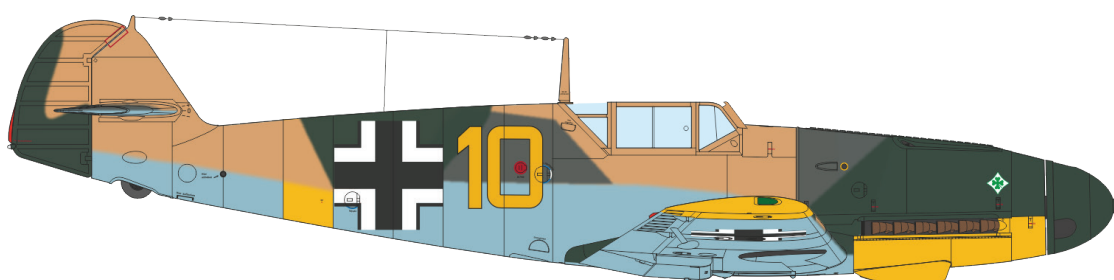
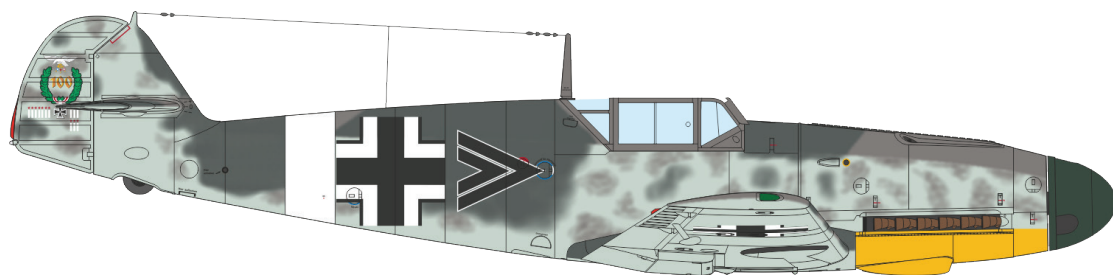
### ■ Bf 109F-4, Uffz. Hans Döbrich, 6./JG 5, Petsamo, Finland, September 1942



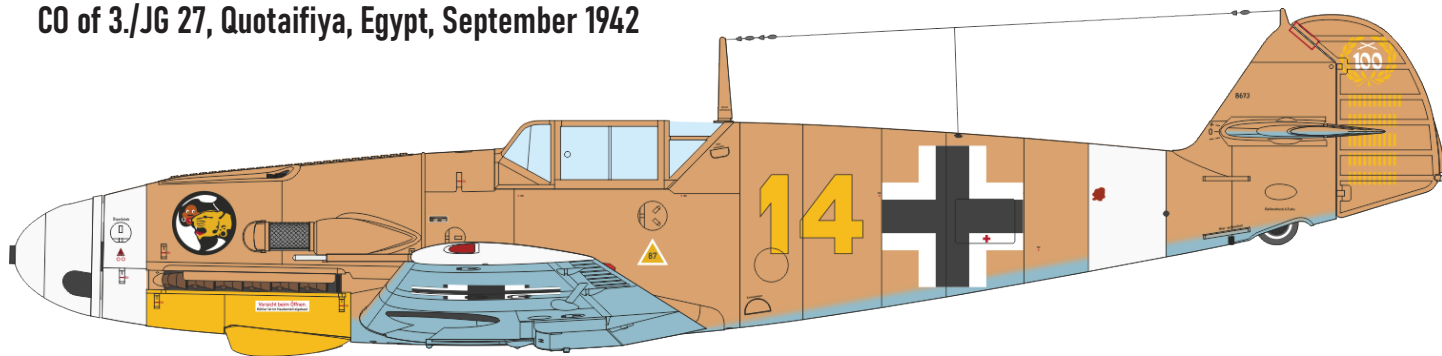
This aircraft was flown by Hans Döbrich, a fighter ace credited with 65 victories. He was downed three times and seriously wounded during the last incident. He never flew a combat sortie again. During the second half of 1942, II./JG 5

was equipped with "Friedrichs" manufactured for service in a tropical environment. The desert camouflage colors consisting of RLM 79 and RLM 78 were applied at the factory. Feldflugpark (Repair Field Unit) in Pori added segments of RLM

74/70 (some sources state RLM 75/71) which helped to camouflage effect over the northern territory. The green shamrock on the cowling was a crest of 6./JG 5.



■ Bf 109F-4/Trop, WNr. 8673, Hptm. Hans-Joachim Marseille,  
CO of 3./JG 27, Quotaifiya, Egypt, September 1942



Hans-Joachim "Jochen" Marseille became the most successful German fighter pilot fighting against the Western Allies. He was awarded the Knight's Cross with Oak Leaves, Swords and Diamonds. A master of piloting, shooting and dog fighting, he also showed a respect and grace to his opponents as he tried to save downed enemy airmen in the desert by dropping news of their fate on the other side of the front. Marseille used this plane after his return from Rome and achieved 49 victories with this last of "Friedrichs"

he used from August 24, 1942, to September 25, 1942. On September 30, 1942, he flew the Messerschmitt Bf 109G-2/Trop as he led escort mission of the 3. Staffel to cover a squadron of Ju 87 Stukas. On the return leg, a smoke filled the cockpit and Marseille was forced to bail out. Hitting the rudder after the emergency exit of the plane, he lost consciousness, and his parachute did not open. Seconds later, Marseille died from the impact on the ground. After his death, WNr. 8673 was used by 1./SG 2 but was hit by flak and

lost southward of El Alamein on October 22, 1942. The aircraft had the upper camouflage color RLM 79 sprayed all over the fuselage sides as a non-standard finish. The lower surfaces were sprayed with RLM 78 and the camouflage was complemented by the markings of the aircraft operating on the Southern front, i.e., white wingtips, white propeller cone and a band on the aft fuselage of the same color. The engine cowl bore the emblem of I. Gruppe JG 27 on both sides.

## Recommended: for Bf 109F-2 and F-4 1/72

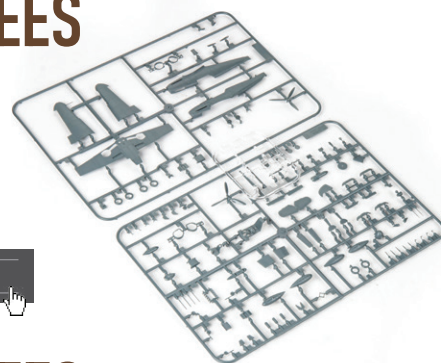
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|----------|-------------------------------------------------------|
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| 672315   | Bf 109F gun barrels PRINT (Brassin)                   |
| 672316   | Bf 109F wheels PRINT (Brassin)                        |
| 3DL72018 | Bf 109F SPACE (3D Decal Set)                          |
| 672317   | Bf 109F undercarriage legs BRONZE (Release 07/2023)   |
| 672318   | Bf 109F radio compartment PRINT (Release 07/2023)     |
| 672321   | Bf 109F/G external fuel tanks (Release 07/2023)       |
| 672322   | Bf 109F wheel bays rounded PRINT (Release 07/2023)    |
| 672323   | Bf 109F/G wheels bays angular PRINT (Release 07/2023) |
| 672324   | Bf 109 SC250 bomb (Release 07/2023)                   |
| 672325   | Bf 109F/G exhaust stacks PRINT (Release 07/2023)      |



## OVERTREES

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Bf 109F-2  
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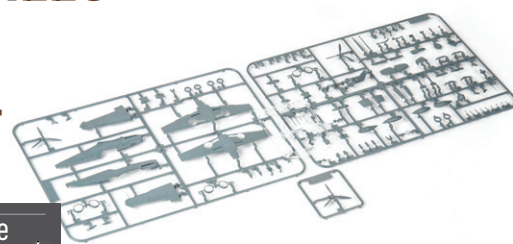
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## OVERTREES

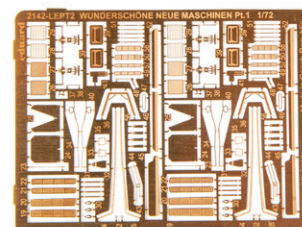
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Bf 109F-4  
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[Product page](#)



OVERLEPT  
#2142-LEPT  
WUNDERSCHÖNE  
NEUE MASCHINEN  
PE-Set  
1/72

[Product page](#)





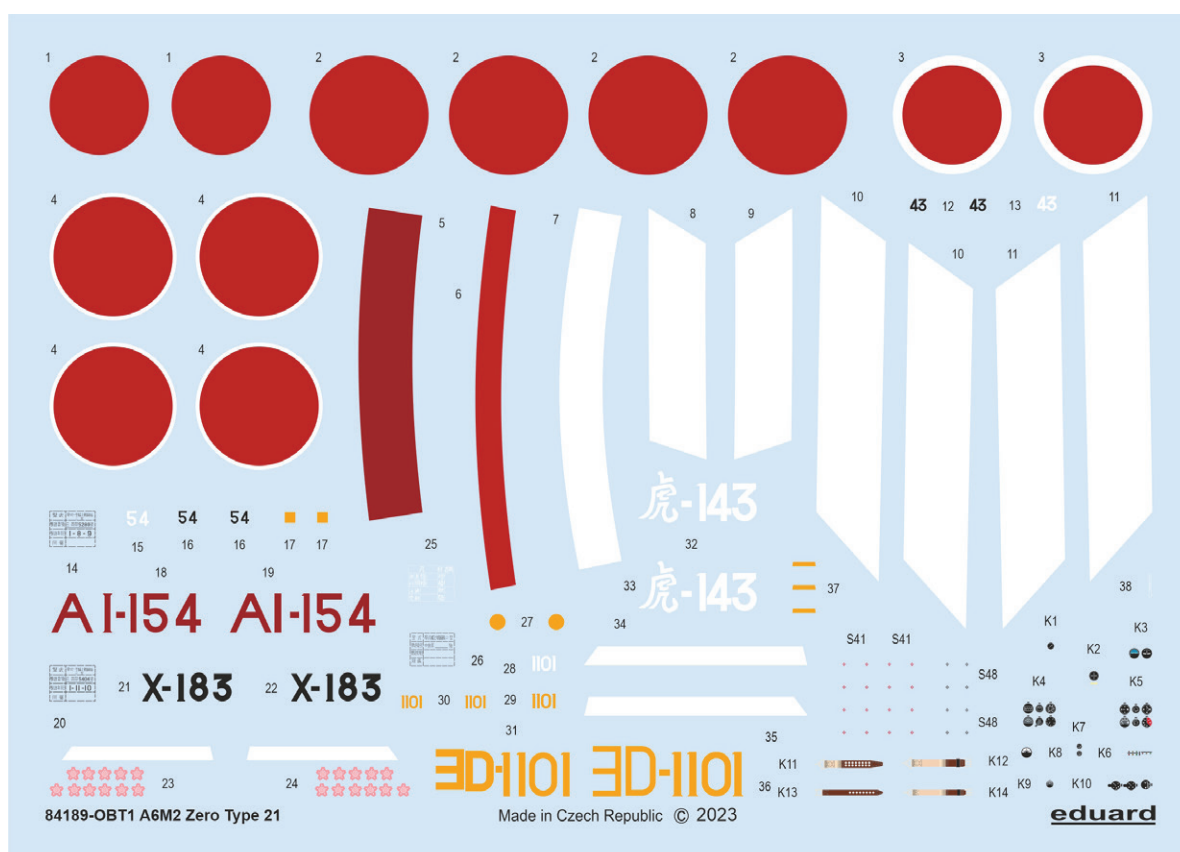
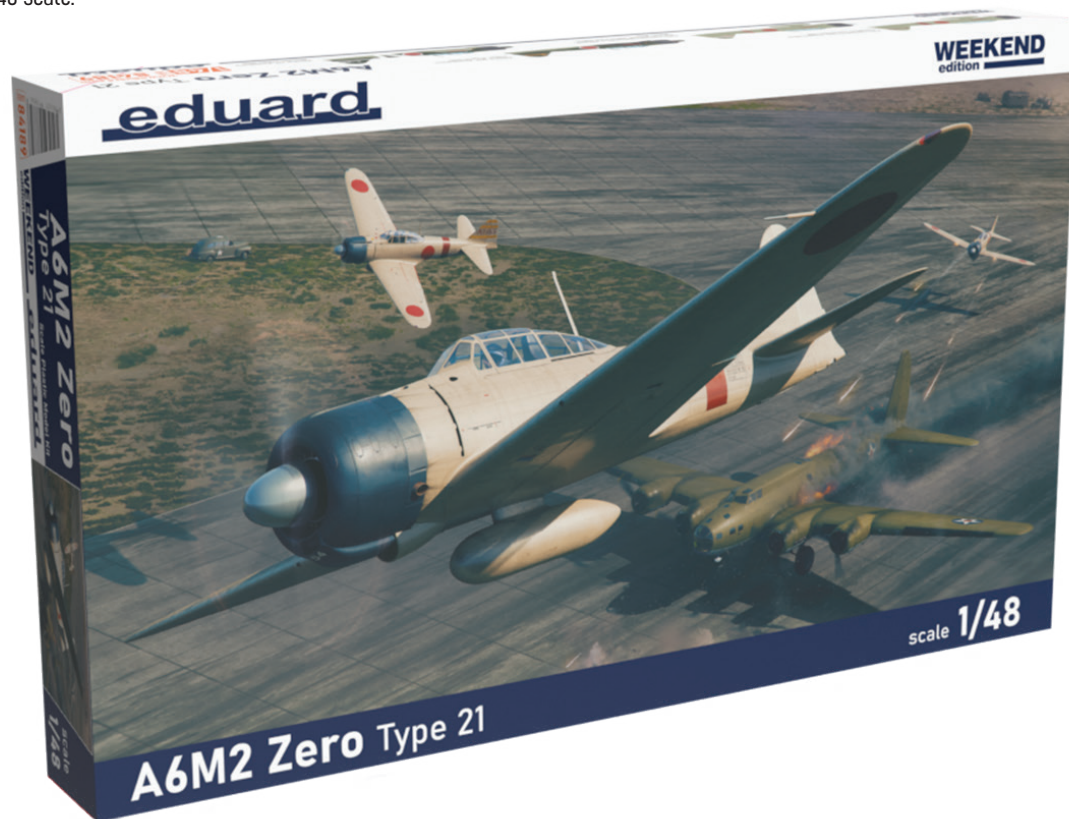
# A6M2 Zero Type 21

# 1/48

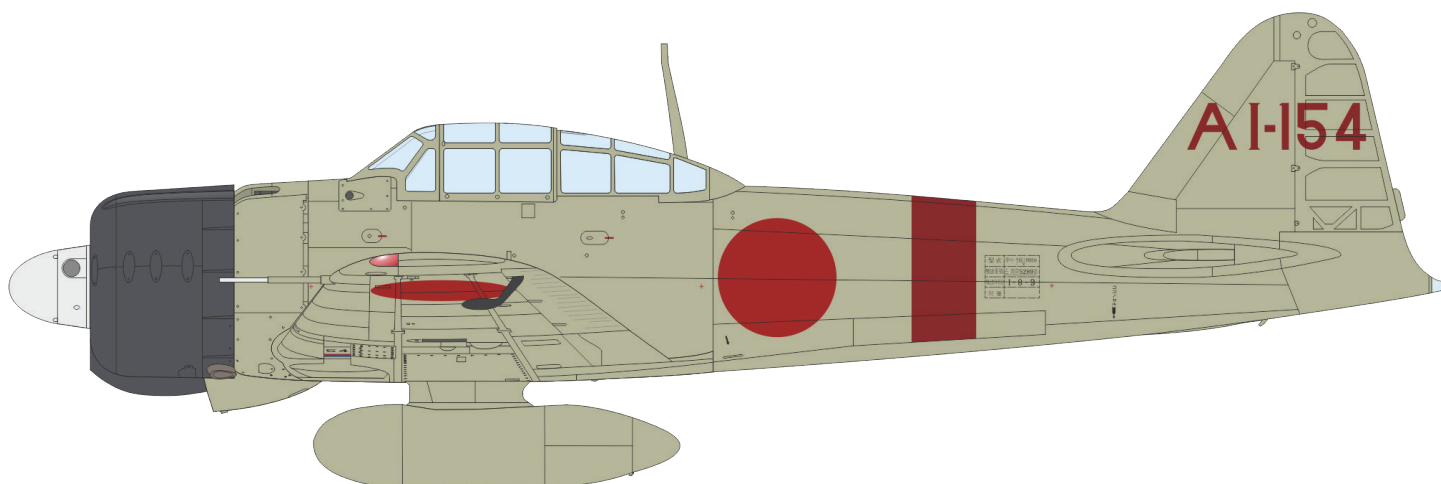
#84189

The Weekend edition kit of the Japanese WWII naval fighter plane A6M2 Zero Type 21 in 1/48 scale.

- plastic parts: Eduard
- marking options: 4
- decals: Eduard
- PE parts: no
- painting mask: no
- resin parts: no

[Product page](#)


## ■ c/n 5289, P01c Takashi Hirano, Akagi Fighter Squadron, December 1941

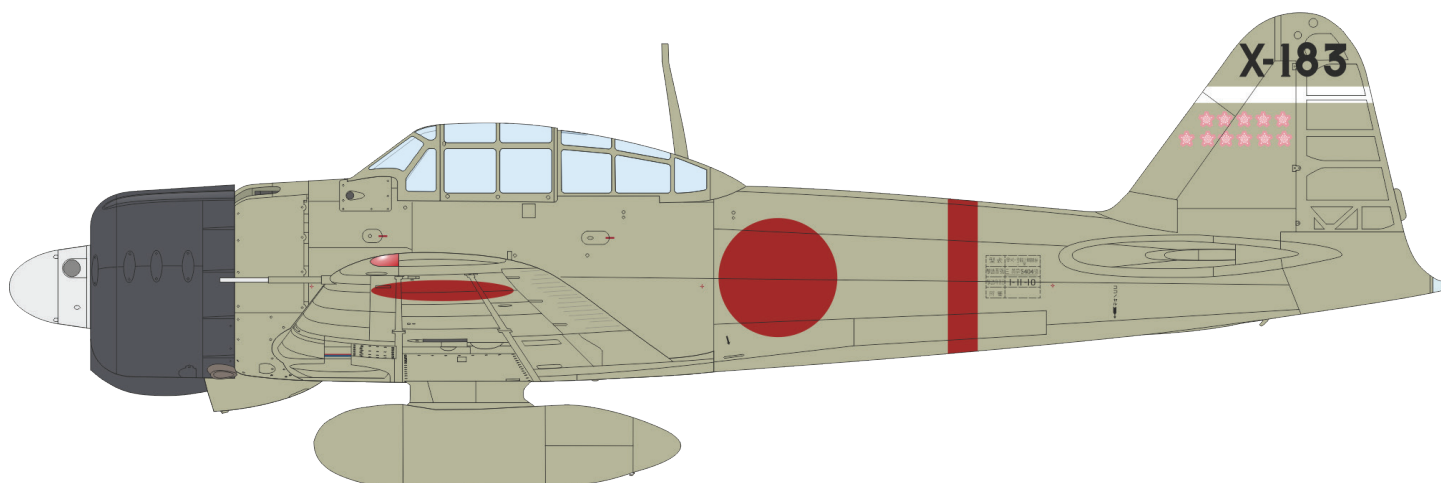


This Zero was manufactured by Mitsubishi, finished on August 9, 1941. It was one of the aircraft that were equipped with additional aileron mass balance. The design of the Roman numeral on this aircraft differed slightly on the right and left side of the tail. During the attack on Pearl Harbor it was flown by Takashi Hirano as a wingman of Lt. Cdr. Shigeru Itaya who led 43 Zero fighters, including nine from Akagi. Itaya's own Akagi formation shot down one sightseeing

and three training aircraft. Then, at John Rodgers, Hickam and Ewa airfields, they destroyed about 25 aircraft and also attacked incoming B-17s. Hirano first shot down a Piper Cub near the Nuuanu Pali mountain pass in cooperation with Itaya's second wingman. Piper pilot Marcus F. Poston bailed out. Itaya and his wingmen damaged and set afire a B-17C of the 7th BG flown by the crew led by Capt. Swenson. The bomber broke in half on the ground and the fighters strafed its fleeing

crew. Hirano mortally wounded the passenger, 1st Lt. (Dr.) William R. Schick, Flight Surgeon of the 38th Reconnaissance Squadron. However, the Hirano struck the ground, lost its auxiliary tank, damaged the propeller, and suffered an engine stall. Flying low between buildings, he then hit an obstacle, killing both himself and four American soldiers. A map was found in the wreckage of the Zero and with this information the Americans attempted to search for the Japanese task force.

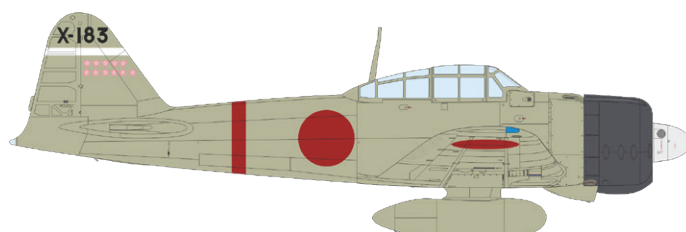
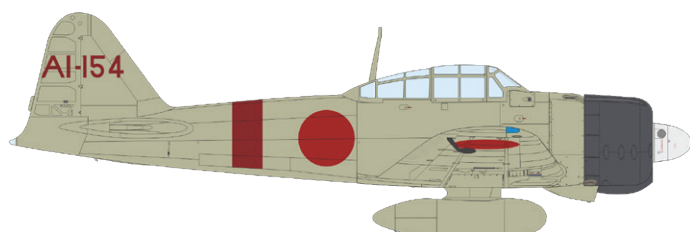
## ■ c/n 5404, P03c Yoshirō Hashiguchi, 3. Kōkūtai, Kendari airfield, Dutch East Indies, March 1942



This aircraft left Mitsubishi factory on November 10, 1941 and was equipped with ailerons without additional mass balance. Its pilot was Yoshirō Hashiguchi (born 1918, Fukuoka). He completed his flight training in September 1938 and after further training with several units was assigned to the 12th Kōkūtai in China in June 1939. However, he was wounded in a Chinese raid on his unit's base and after recovering he became an instructor with the Suzuka Kōkūtai in January 1940. In November

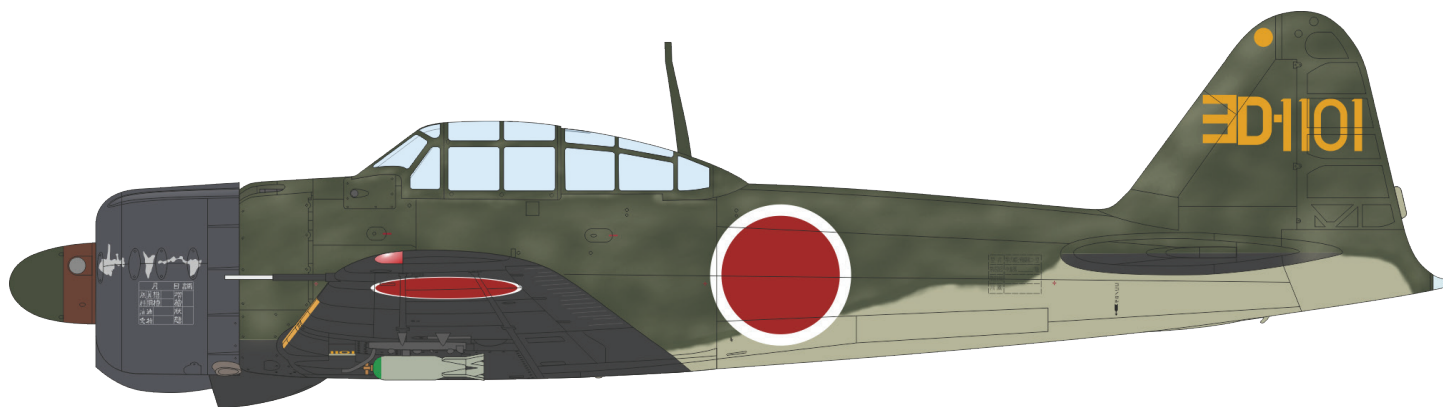
1941 he was assigned to the 3rd Kōkūtai and successively fought in the Philippines, the Dutch East Indies or Guadalcanal and participated also in the raids on Australia. He returned to Japan in June 1943 and served as an instructor with the Ōita Kōkūtai. In December he was assigned to Kōkūtai 601 as a member of the carrier fighter squadron of the IJN Shōkaku and survived the Battle of the Philippine Sea. In July 1944 he was transferred to Hikōtai 164 as part of Kōkūtai 653 and took part in

the Battle of Cape Engaño aboard the IJN Chiyoda on October 25. He made several operational sorties during the battle but remained missing after the sinking of the carrier. The total number of Hashiguchi's victories is not precisely known but is reported to be in excess of ten. At the time of his death, he held the rank of Chief Petty Officer and was posthumously promoted to Warrant Officer.





## ■ Kōkūtai 302, Atsugi Base, Japan, August 1945

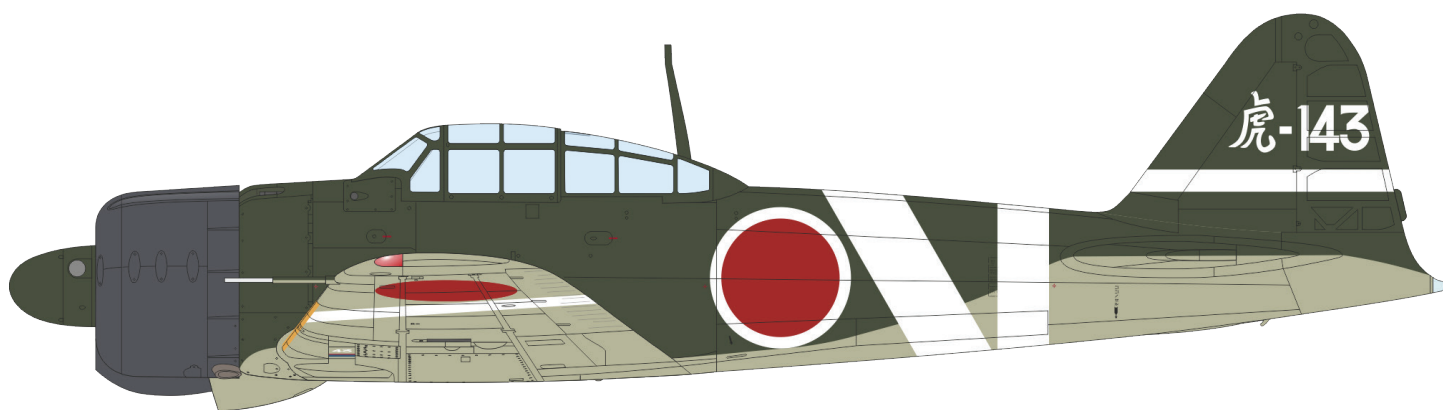


This aircraft, probably built by Nakajima, bore dark green paint applied at unit level. Plane was seized by the Americans at the end of the war at Atsugi Base, where it was captured on both sides on a color footage. It bore considerable signs of wear and one aerial victory marked on the tail. The Zero was painted black on the underside of the wing, horizontal stabilizer and elevator. Kōkūtai 302 was established in 1944 as a unit dedicated to the defense of Yokosuka Base. Its

1st Hikōtai was armed with Raidens and Zeros, while its 2nd Hikōtai was armed with single- as well as twin-engine fighter and bomber aircraft that were modified for night interception. The unit specialized in fighting B-29 bombers both day and night. It was commanded by Capt. Yasuna Kozono, who had night fighter experience in the South Pacific when he commanded Kōkūtai 251 (formerly Tainan Kōkūtai) in 1943. He had its J1N Gekkō (Irving) reconnaissance aircraft fitted with

fuselage-mounted guns that pointed obliquely upward for night pursuit purposes. He pushed the same solution, despite opposition from many pilots, for the Kōkūtai 302. A single fuselage-mounted gun was also fitted to some Zeros of Kōkūtai 302, as they were primarily intended for night pursuit. The YoD-1101 was not equipped with this additional armament. A Squadron (Buntai) of night-fighter Zeros claimed to shoot down seven B-29s, four fighters, one Catalina, and one Privateer.

## ■ Kōkūtai 261, Kagoshima airbase, Japan, 1944



This Zero was manufactured by Nakajima with factory painted dark green paint on the upper surfaces. The white stripes and bands served as a quick identification feature but their exact purpose is unknown. Kōkūtai 261 was established in June 1943 at Kagoshima Air Base, Japan, and was given the battle name Tora (Tiger). It was also referred to as Tora Butai. The identifying feature of its aircraft was the numerical code 61, or Kanji character for tiger. Unit went through

heavy combat with US Navy airmen, primarily in Central Pacific, but operated briefly also from Biak Island north of New Guinea. By May 1944, its aircraft strength was already reduced to half and in July the unit had to be disbanded due to high casualties. Some of the remaining members of the unit were killed in ground combat or aboard a submarine during the evacuation. The position of Hikōtaichō was held by Lieutenant Masanobu Ibusuki, who participated in the attack on Pearl

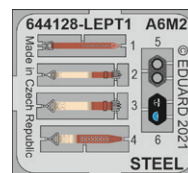
Harbor and the Battle of Midway on the aircraft carrier Akagi and served on the aircraft carrier Shōkaku during the fighting in the South Pacific. It is possible that Ibusuki achieved from 25 to 30 aerial victories during the war. After the war, he became the first JSDAF unit commander with F-86 Sabre jets, reaching the rank of Lieutenant Colonel, but was killed in January 1957 in a collision with another F-86.



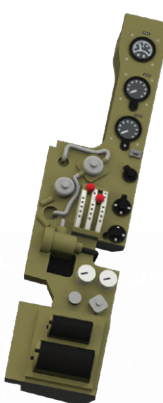
# Recommended: for A6M2 Zero Type 21 1/48

- |          |                                                     |
|----------|-----------------------------------------------------|
| 481076   | A6M2 landing flaps (PE-Set)                         |
| 481077   | A6M2 Zero (PE-Set)                                  |
| FE1238   | A6M2 seatbelts STEEL (PE-Set)                       |
| 644128   | A6M2 LööK (Brassin)                                 |
| 644134   | A6M2 LööKplus (Brassin)                             |
| 648692   | A6M2 Zero Model 21 cockpit PRINT (Brassin)          |
| 648693   | A6M2 wheels (Brassin)                               |
| 648694   | A6M2 engine PRINT (Brassin)                         |
| 648695   | A6M undercarriage legs BRONZE (Brassin)             |
| 648698   | A6M2 seat PRINT (Brassin)                           |
| 648722   | A6M2 exhausts PRINT (Brassin)                       |
| 648723   | A6M2 cannon barrels & cockpit guns PRINT (Brassin)  |
| 648724   | A6M2 landing flaps PRINT (Brassin)                  |
| 648731   | A6M2 Zero Model 21 folding wingtips PRINT (Brassin) |
| 648763   | A6M2 engine complete PRINT (Brassin)                |
| 648771   | A6M2 gun bays PRINT (Brassin)                       |
| 648772   | A6M2 tailwheel PRINT (Brassin)                      |
| 648808   | A6M wheels w/smooth tire (Brassin)                  |
| 3DL48050 | A6M2 SPACE (3D Decal Set)                           |
| D48098   | A6M2 stencils (Decal Set)                           |
| D48100   | A6M2 national insignia (Decal Set)                  |
| EX821    | A6M2 TFace (Mask)                                   |

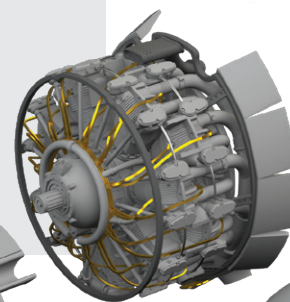
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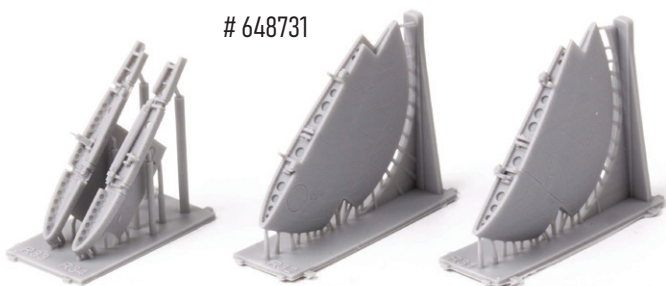
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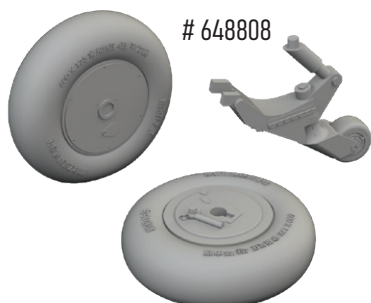
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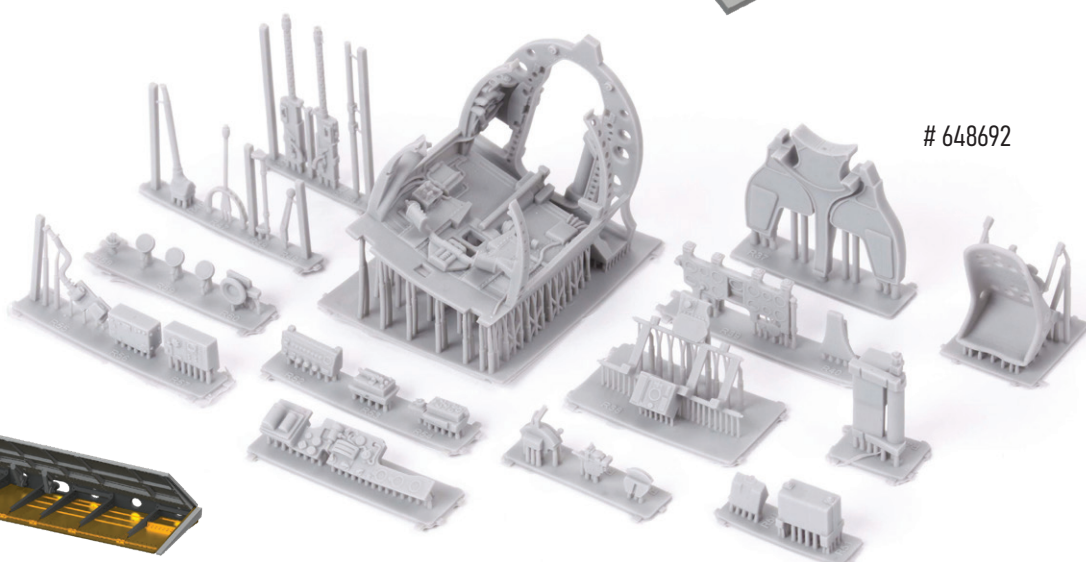
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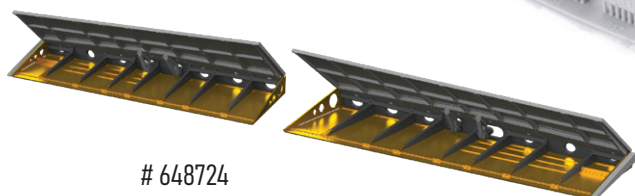
# 648808



# 648692

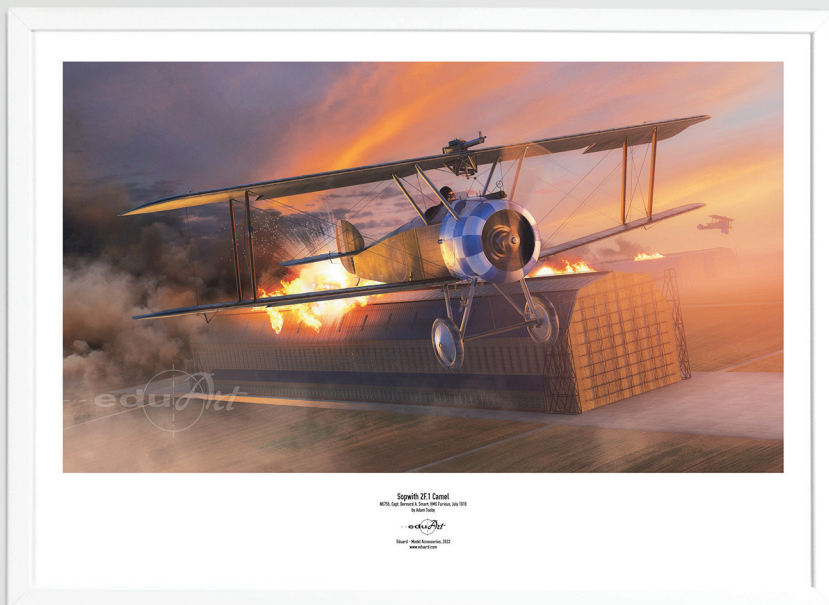


# 648724





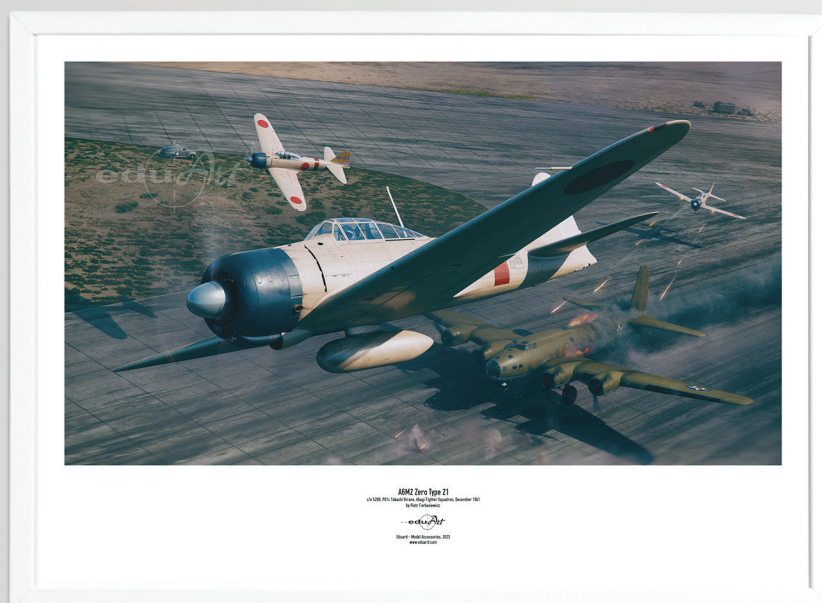
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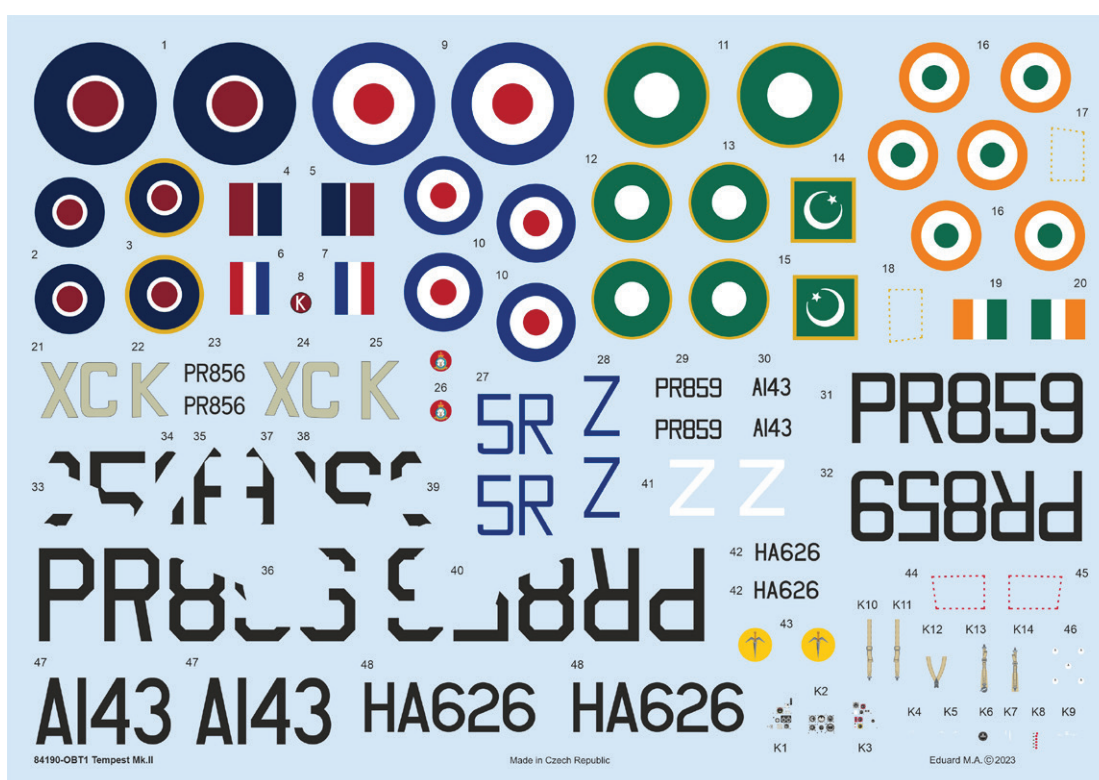
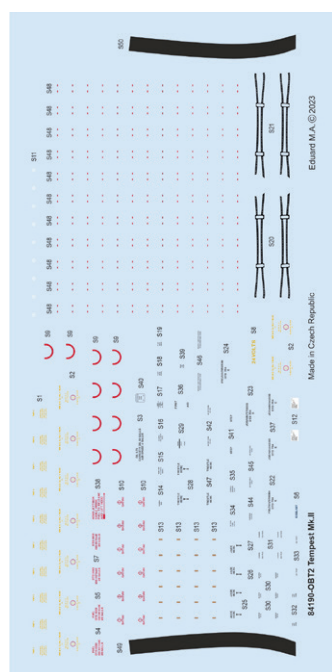
# Tempest Mk.II

#84190

1/48

The Weekend edition kit of British fighter aircraft Tempest Mk.II in 1/48 scale. The marking selection offers RAF, Royal Pakistan Air Force and Indian Air Force markings.

- plastic parts: Eduard
- No. of decal options: 4
- decals: Eduard
- PE parts: no
- painting mask: no
- resin parts: no

[Product page](#)




### ■ PR856, F/Lt Jack Frost, No. 26 Sqn, No. 135 Wing BAFO, Zeltweg, Austria, July 1947



No. 26 Squadron received the Tempest Mk.II serial number PR856 on New Year 1947. It was used as a personal aircraft of the A flight leader F/Lt Jack Frost. His Tempest sported the red markings on the propeller spinner and drop tanks indicating that the aircraft belonged to the A flight. On July 15, 1947, as a reaction to the growing tension at the Yugoslav-Italian border the No. 135 Wing flew

to Austrian Zeltweg, the closest suitable airbase the RAF could operate from, under the code name Operation Diagram. Trieste, the center of the riots, was barely over 30 minutes of flight away. To demonstrate its presence, four RAF Tempests led by F/Lt Frost from the No. 26 Squadron overflew the mansion of the Yugoslav president Josip Tito. After a month of the operations out of the Zeltweg

airbase the No. 135 Wing returned to Fassberg. In April 1949, when the No. 26 Squadron was re-equipped with Vampire FB.5 aircraft, PR856 was returned to the Great Britain. After it was stored at the No. 20 Maintenance Unit in Aston Down this aircraft became one of twenty surplus Tempests F.II which in the summer 1951 were sold to the Indian government.

### ■ PR859, No. 33 Squadron, Butterworth, Malaya, October 1949

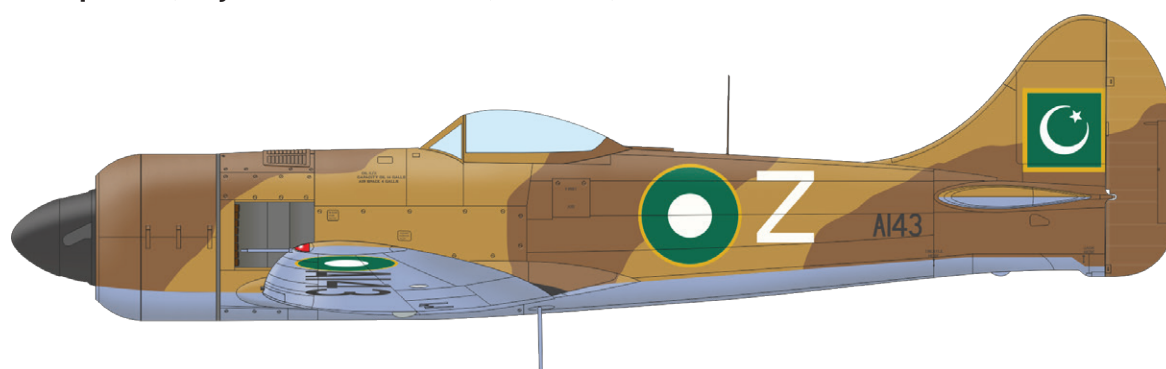


In June 1949 the Tempests F.2 (the Arabic numerals replaced Roman ones in 1948) from the No. 33 Squadron were dispatched to Malaya on board of the HMS Ocean. Some of them were already painted in the new standard "aluminum" scheme. In October 1949 the remaining camouflaged Tempests were oversprayed

with the new scheme, one of them was PR859 marked 5R-Z. The code letters on this aircraft were painted in blue color indicating B flight. The propeller spinner was painted in the same color. By the end of 1949 the No. 33 Squadron was fully operational tasked with maintaining four Tempests on scramble for strikes against

the MNLA communist terrorists (Malaysian National Liberation Army). During the next 21 months many sorties were flown deploying the rocket and cannon weaponry to support the army operations to make MNLA to retreat.

### ■ A143, No. 14 Squadron, Royal Pakistan Air Force, Pakistan, 1949-1950

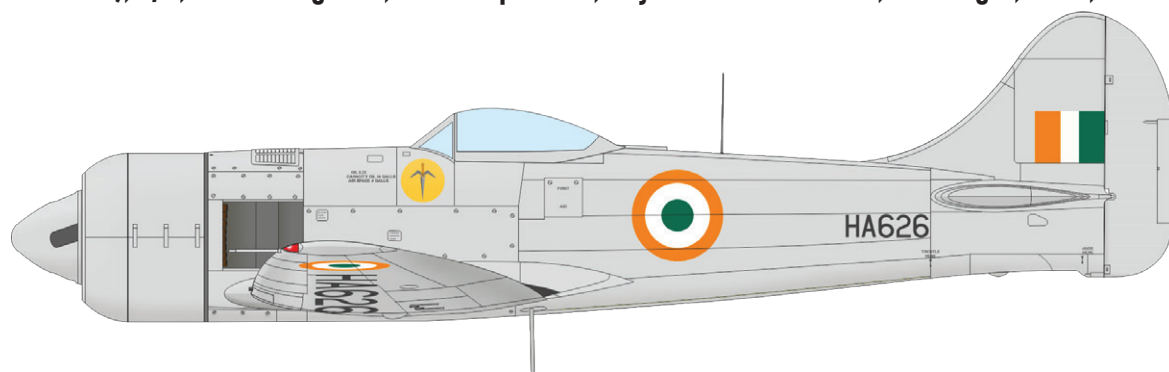


On November 1, 1948, in Peshawar the No. 14 Squadron of the Royal Pakistan Air Force (RPAF) was established. Only four days later the first encounter of Indian RIAF and Pakistani RPAF aircraft took place when two RIAF Tempests attacked the Pakistani Dakota. On January 15, 1949, the No. 14 Squadron was disbanded due to the fact that during December the unit had lost

two Tempests and without replacement aircraft the situation became critical. The supplies of new Tempests commenced in March 1949 and the aircraft were immediately allocated to the combat units. They received the serials from A128 to A151 and were easily recognizable thanks to their desert camouflage scheme. The recognition stripes were not applied. As the material and

personal situation improved on December 15, 1949, the No. 14 Squadron was re-activated under the leadership of Polish pilot Julian Kazimierz Żuromski. On March 24, 1950, the unit has been relocated to Miranshah for its first combat deployment against Faqir of Ipi uprising.

■ HA626 (ex MW391), F/O, Ian S. Loughran, No. 10 Squadron, Royal Indian Air Force, Jamnagar, India, January 1952

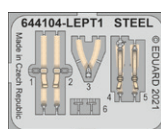


HA626 flew with the No. 10 Squadron carrying the original aluminum scheme with the fuselage national insignia in place of the original "Chakra"

markings. There is the IAF No. 10 Squadron insignia in the form of a Winged Dagger in the yellow circle painted under the windshield. It was

designed by F/O Ian Steele "Locky" Loughran and painted for the first time on Tempest Mk.II serial number HA626.

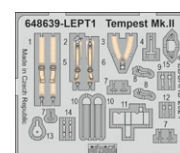
## Recommended: for Tempest Mk.II 1/48



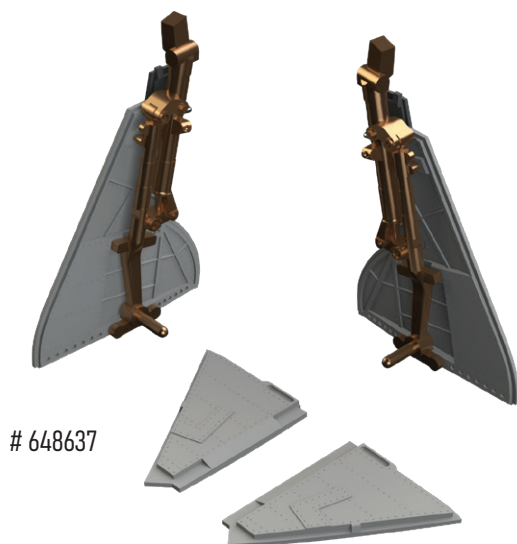
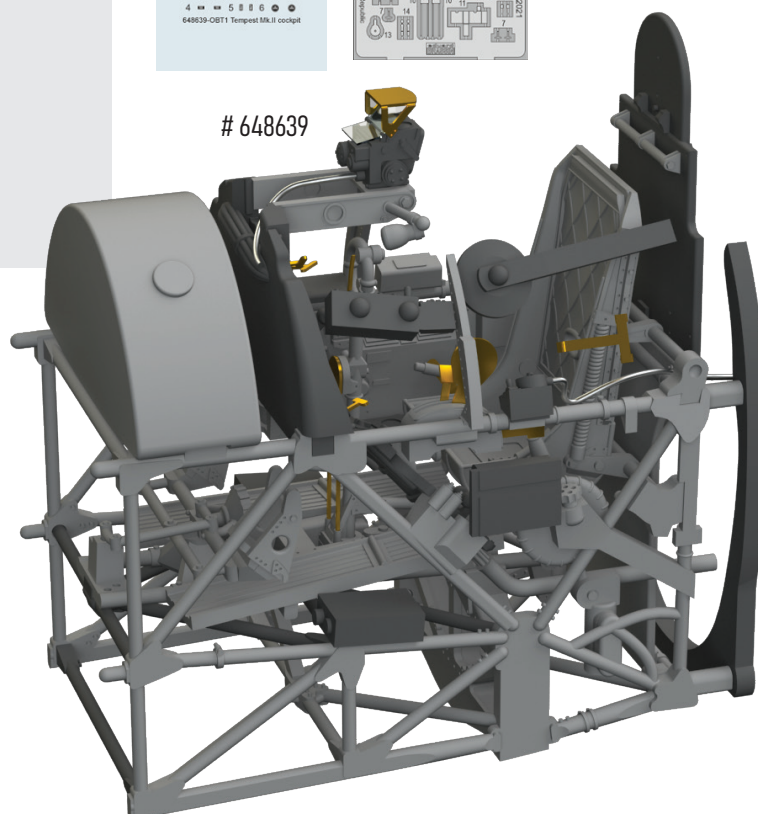
- 481064 Tempest Mk.II landing flaps (PE-Set)
- FE1208 Tempest Mk.II seatbelts STEEL (PE-Set)
- 644104 Tempest Mk.II LööK (Brassin)
- 644115 Tempest Mk.II LööKplus (Brassin)
- 648636 Tempest Mk.II wheels (Brassin)
- 648637 Tempest Mk.II undercarriage legs BRONZE (Brassin)
- 648638 Tempest Mk.II gun bays (Brassin)
- 648639 Tempest Mk.II cockpit (Brassin)
- 648641 RP-3 60lb rockets for Tempest Mk.II (Brassin)
- 648654 Tempest Mk.II exhaust stacks (Brassin)
- 648686 Tempest Mk.II landing flaps PRINT (Brassin)
- SIN64875 Tempest Mk.II ESSENTIAL (Brassin)
- 3DL48030 Tempest Mk.II SPACE (3D Decal Set)
- D48086 Tempest Mk.II stencils (Decal Set)
- D48087 Tempest Mk.II roundels (Decal Set)
- EX796 Tempest Mk.II TFace (Mask)



# 644104



# 648639



# 648637



## Bf 109G-6 late series

1/48

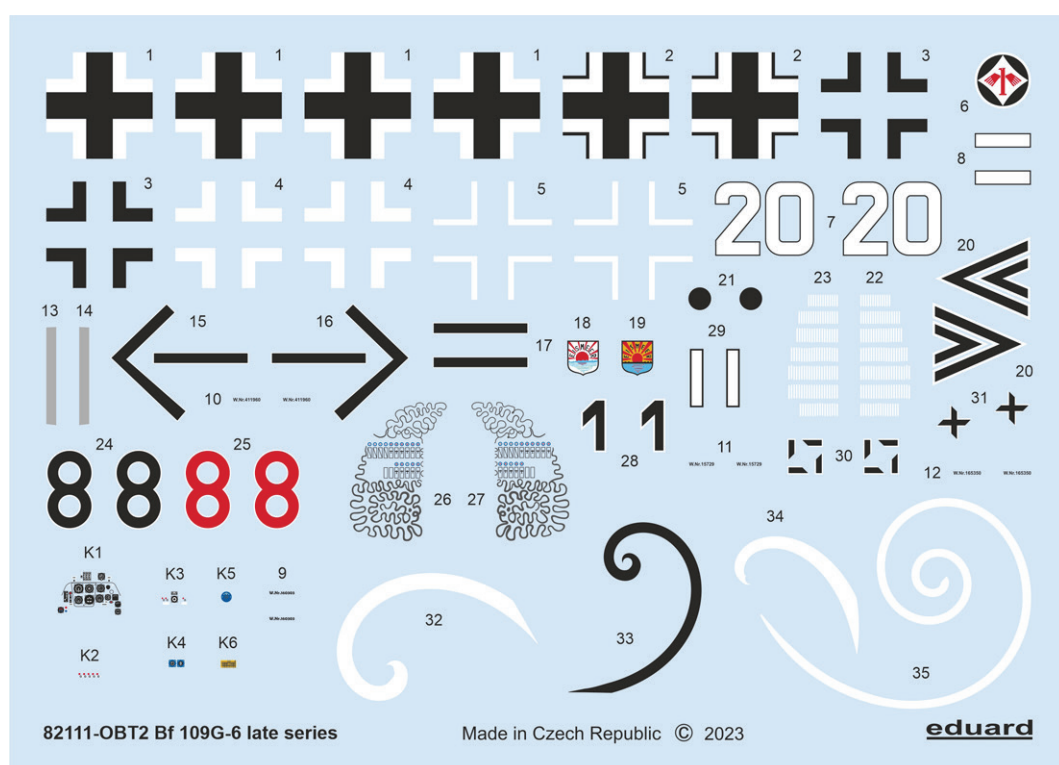
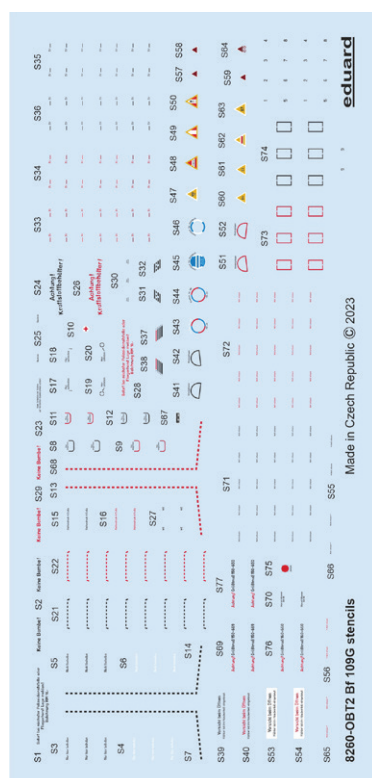
#82111

The ProfiPACK edition of German fighter aircraft Bf 109G-6 in 1/48 scale.  
The kit features Bf 109G-6 with so-called Erla canopy and standard  
or redesigned bigger tailplane.

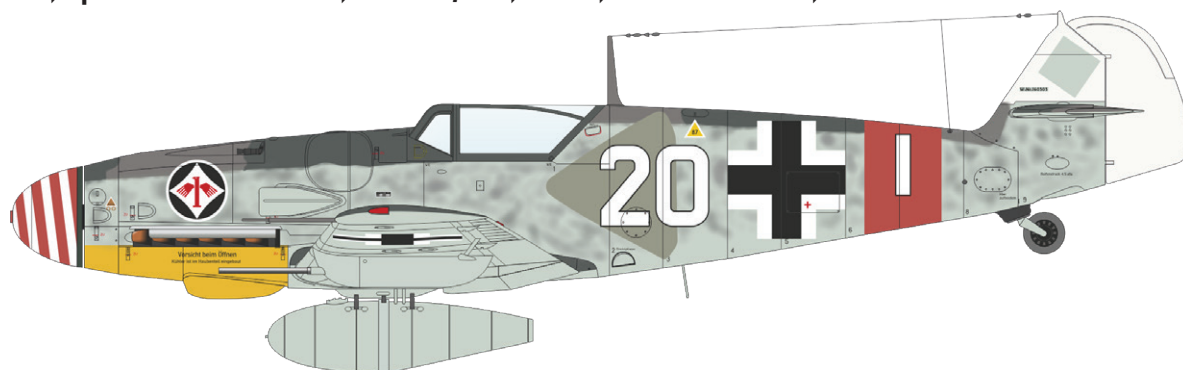
Re-release

- plastic parts: Eduard
- marking options: 5
- decals: Eduard
- PE parts: yes, pre-painted
- painting mask: yes
- resin parts: no

Product page



# ■ WNr.160303, Hptm. Friedrich Eberle, CO of III./JG 1, Volkel, the Netherlands, November 1943

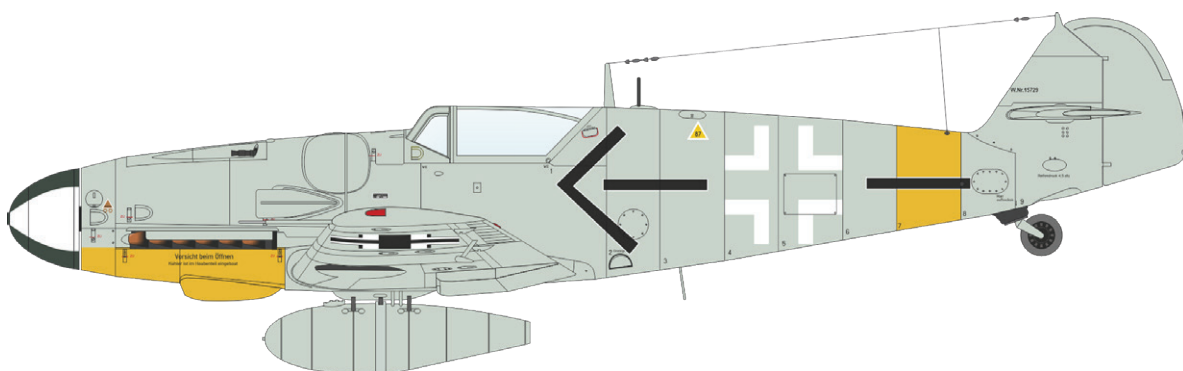


Friedrich Eberle, the commanding officer of III. Gruppe of JG 1, was downed in this Bf 109G-6 on January 30, 1944. The man who recorded the kill was a P-47D Thunderbolt jockey, Lt. Robert Booth, of the 369th FS, 359th FG, a fighter ace with a total of eight kills to his credit. Booth himself was downed a few months later, on June 8, 1944 and

became a POW. Eberle was injured but survived the encounter with Booth and led III. Gruppe until April 27, 1944. In July 1944, he was appointed the CO of III./JG 4. Eberle led his unit in Operation Bodeplatte, the attack on Allied airfields on January 1, 1945. He was court martialled for cowardice but finally was acquitted of the charge and survived the war with

33 kills. Eberle's aircraft had been marked with a double chevron but in accordance with temporary orders, this marking was painted over and the commander's aircraft was marked with a number. The JG 1 crest was painted on the left side of the cowlings only. The rear part of the fuselage was partially overpainted with RLM 76 to tone it down.

# ■ WNr. 15729, Obstlt. Hermann Graf, Stab./JG11, Jever, Germany, early 1944

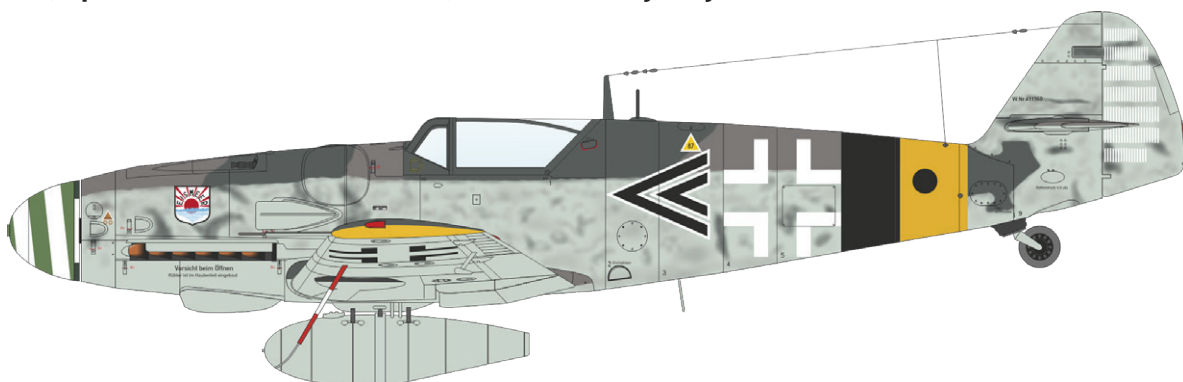


This aircraft was manufactured by the Erla factory as a Bf 109G-5 high-altitude fighter but was converted to G-6 standard later. What was typical for the G-5 and retained during the conversion was the anti-fog capsule in the windscreen. The camouflage scheme is unusual – the former camouflage including the Stab marking was oversprayed with a light grey color, probably RLM 76. Hermann Graf commanded JG 11 from

November 11, 1943 till March 29, 1944 and despite the fact that he was officially banned from flying, he managed to down seven aircraft – amounting to the final kills of his career. He is credited with 212 victories in total (the majority of which were with JG 52 and three with JGr. 50). He was awarded for his successes during the war as well as after. He received Diamonds to his Ritterkreuz with Oak Leaves and Swords, the fifth recipient of this

honor, on September 29, 1942. Graf participated in propaganda campaigns, and he was a member of the Luftwaffe soccer team. At the end of the war, Graf led JG 52 and retreated from East Prussia via Silesia to Bohemia and surrendered to US forces at Písek on May 8, 1945. He was promptly handed over to the Russians and spent more than four years in Russian captivity.

# ■ WNr. 411960, Hptm. Franz Dörr, CO of III./JG 5, Gossen, Norway, May 1945



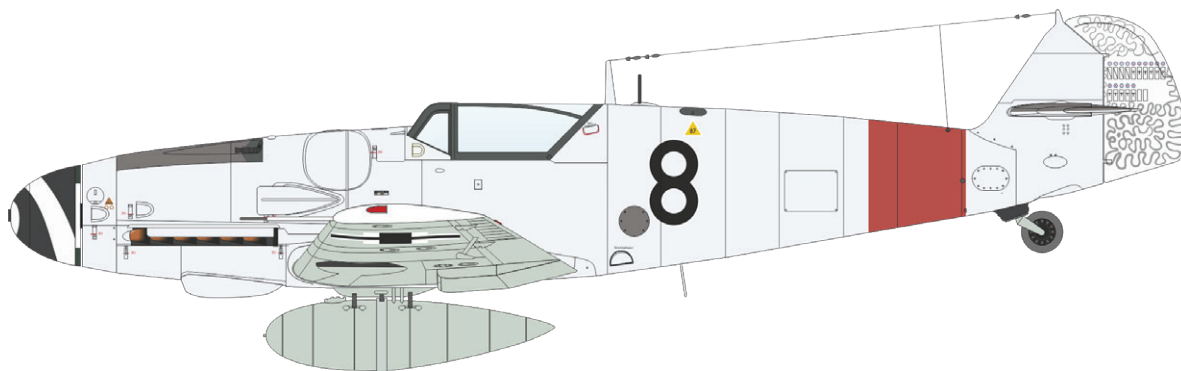
Franz Dörr downed his first victim, a British Wellington bomber, on September 29, 1941 as a member of 1.(Erg.)/JG 3. This unit was redesignated 7./JG 5 on January 1, 1942. In early May 1944, Dörr took command of III. Gruppe of JG 5 and led this unit till the end of war. Dörr

was awarded the Ritterkreuz on August 19, 1944. He managed to down 122 enemy aircraft – his score is marked on the rudder of his personal Bf 109G-6, WNr. 411960. This aircraft was manufactured at the Erla factory and sports all its typical characteristics such as the small bulge

on the right side of the cowlings and different gun troughs. The exact color of the spinner is inconclusive from photographic evidence but can be black with a white spiral. The small disc on the rear fuselage identified III. Gruppe aircraft.



## ■ Oblt. Kurt Gabler, CO of 8./JG 300, Jüterbog – Waldlager Air Base, Germany, July 1944

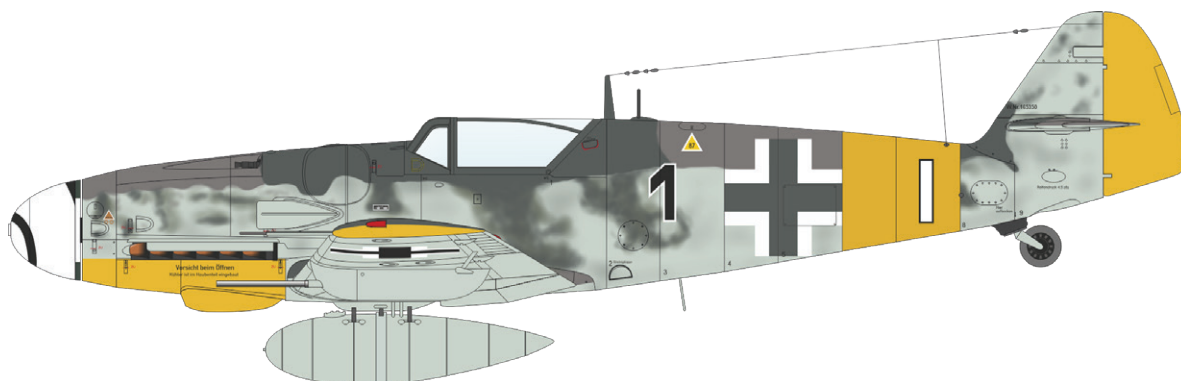


The personal aircraft of Oblt. Kurt Gabler flew without camouflage. This saved on weight, reduced drag, and made the aircraft more effective in the pursuit of the fast Mosquitos. The white tail and wingtips identified the leader's aircraft since Gabler provisionally led III./JG 300 from June 20, 1944. The wide red tailband was common to

JG 300 aircraft at the time. Gabler's tally of 17 kills is depicted on the rudder. Gabler was wounded in action in late September 1944 and flew no further combat sorties through to the end of the war. The camouflage was stripped off the aircraft to lower aerodynamic drag and help the pilot in the aforementioned pursuit of RAF Mosquitos. The

wings seem to be oversprayed with one color, likely RLM 75. The national insignia on the lower wings surface is not confirmed by photos. The upper cowling, canopy framing and some access panels could be either camouflaged or made of a darker metal.

## ■ WNr. 165350, Lt. Anton Hafner, CO of 8./JG 51, Tilsit-Ost, Germany, August 1944



Hafner was photographed in the cockpit of this particular aircraft in August 1944, when his unit was based at an airfield close to Tilsit in East Prussia (today Sovetsk, a city on the Russian-Lithuanian border). Anton Hafner is credited with a total of 204 victories, all of them achieved as a JG 51 pilot.

He served with JG 51 not only on the Eastern Front where he downed the majority of his opponents, but in North Africa as well, where he was shot down and injured. He met up with his destiny on October 14, 1944. During a dogfight with his 204th and final victim, a Yak-9, Hafner hit some trees and succumbed to his

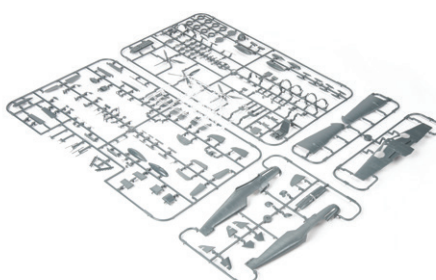
resulting injuries. He was awarded the Ritterkreuz on August 23, 1943 and Oak Leaves were added on April 11, 1944. The appearance of this aircraft was partially reconstructed from existing photos. It could have the standard rudder. The fuselage is darkened with blotches of RLM 74 and 75 color.

## Recommended: for Bf 109G-6 late series 1/48

|          |                                             |
|----------|---------------------------------------------|
| 48885    | Bf 109G-6 (PE-Set)                          |
| FE910    | Bf 109G seatbelts STEEL (PE-Set)            |
| 644003   | Bf 109G-6 LööK (Brassin)                    |
| 644060   | Bf 109G-6 LööKplus (Brassin)                |
| 648240   | Bf 109G-6 cockpit (Brassin)                 |
| 648247   | Bf 109G exhaust stacks (Brassin)            |
| 648250   | Bf 109G-6 engine & fuselage guns (Brassin)  |
| 648255   | Bf 109G-6 propeller (Brassin)               |
| 648261   | Bf 109G-6 wheels (Brassin)                  |
| 648265   | Bf 109G external fuel tanks (Brassin)       |
| 648309   | Bf 109G undercarriage legs BRONZE (Brassin) |
| 648310   | Bf 109G control surfaces (Brassin)          |
| 648843   | Bf 109G-6 cockpit PRINT (Brassin)           |
| 3DL48014 | Bf 109G-6 SPACE (3D Decal Set)              |

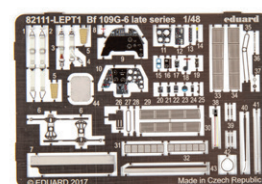
## OVERTREES #82111X Bf 109G-6 late series 1/48

[Product page](#)



## OVERLEPT #82111-LEPT Bf 109G-6 late series PE-Set 1/48

[Product page](#)

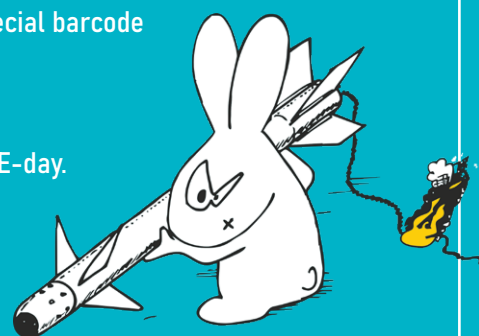


# BUNNY FIGHTER CLUB

Eduard's special membership club for all modeling enthusiasts!

- 15% Permanent Club discount at Eduard Store – you will receive permanent 15% discount on all Eduard products and also discount on various other non-Eduard products. Fixed, permanent, forever!
- Unique valuable Club kits and accessories – you will gain access to unique and nowhere else to be sold products, specially made for BFC members.
- Even better prices at Eduard events stand – do you know that Eduard usually has huge discounts on their products at fairs and events all over the world? BFC members will have even higher discount at these events.
- Club T-shirt – you will receive fancy BFC T-shirt with unique design and special barcode (used for event discounts). This exclusive T-shirt will be only available to the members of BFC.
- Free entry fee on E-day – you will not have to pay a penny to visit Eduard's E-day. That means lot of fun at E-day for two days and entry kit, absolutely free!

\* E-day - INTERNATIONAL SCALE KIT EXHIBITION - IPMS Czech Republic Championship

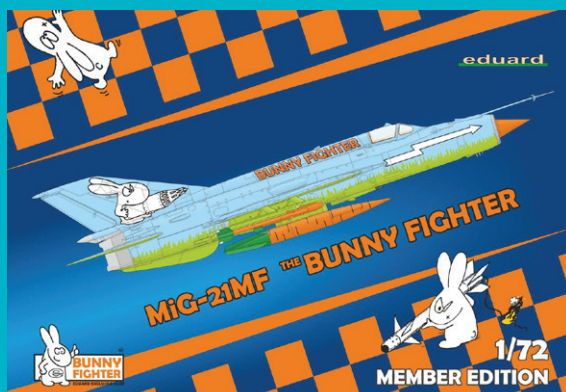


## How to become a member of BFC?

Simply by purchasing the Activation product. You will be given 15% discount on (almost) every Eduard product in your shopping cart. To apply this discount, the Activation product has to be in your shopping cart. Activation product is excluded from this calculation.

## Activation products:

### MiG-21MF + T-shirt 1/72

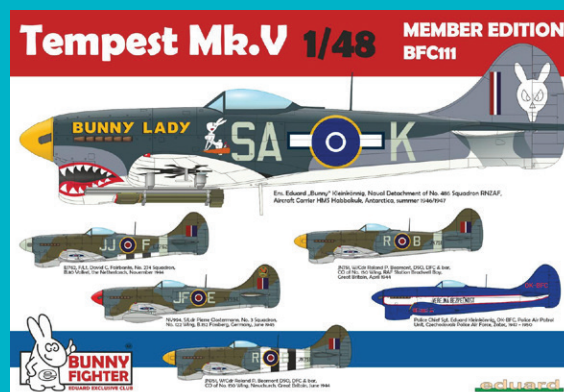


#### BOX CONTENT:

Plastic parts, Marking options 4, Decal Set, PE parts, Mask, Brassin parts (undercarriage wheels, cockpit, exhaust nozzle, FOD).



### Tempest Mk. V + T-shirt 1/48



#### BOX CONTENT:

Plastic parts, Marking options 6, Decal Set, PE parts, Mask, Brassin parts (two different types of wheels, landing flaps, dust filter with eyelid, intake ring and RP-3 60lb rockets), 3D decals for main and side-walk instrument and control panels with photo-etched details and seat belts.



644215

**Mi-8MT LööK**

1/48 Zvezda

LööK set - Brassin pre-painted dashboard and STEEL seatbelts for Mi-8MT in 1/48 scale. Easy to assemble, replaces plastic parts. Recommended kit: Zvezda

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: yes, pre-painted
- painting mask: no

[Product page](#)


LööK

644216

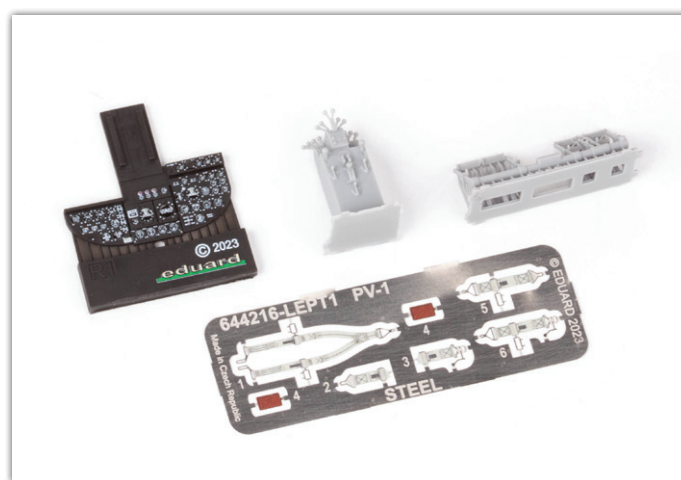
**PV-1 LööK**

1/48 Academy/Revell

LööK set - Brassin pre-painted dashboard and STEEL seatbelts for PV-1 in 1/48 scale. Easy to assemble, replaces plastic parts. Recommended kit: Academy / Revell

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: yes, pre-painted
- painting mask: no

[Product page](#)


LööK



634035

# Hurricane Mk.IIb w/ rounded exhausts LööKplus

1/32 Revell

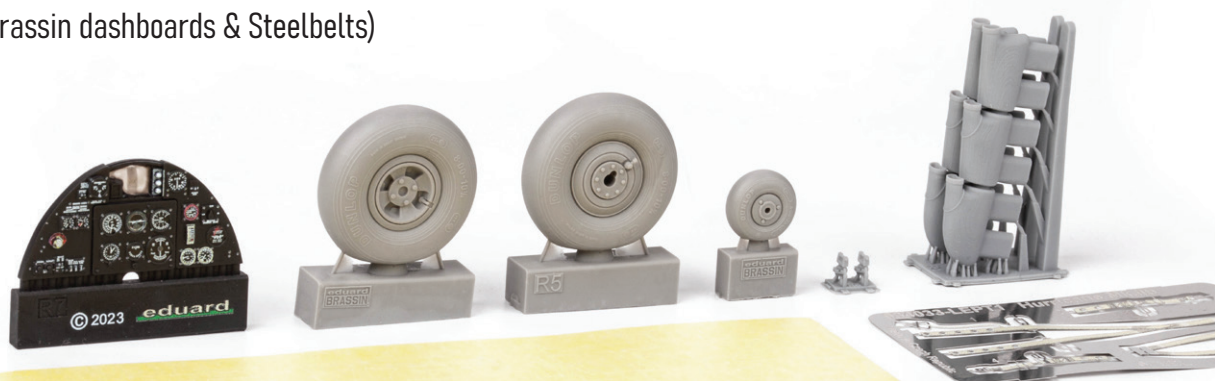
Collection of 4 sets for Hurricane Mk.IIb in 1/32 scale.

Recommended kit: Revell

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels
- exhaust stacks

Product page

*LööK+*



634037

# Hurricane Mk.IIb w/ fishtail exhausts LööKplus

1/32 Revell

Collection of 4 sets for Hurricane Mk.IIb in 1/32 scale.

Recommended kit: Revell

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels
- exhaust stacks

Product page

*LööK+*





644214

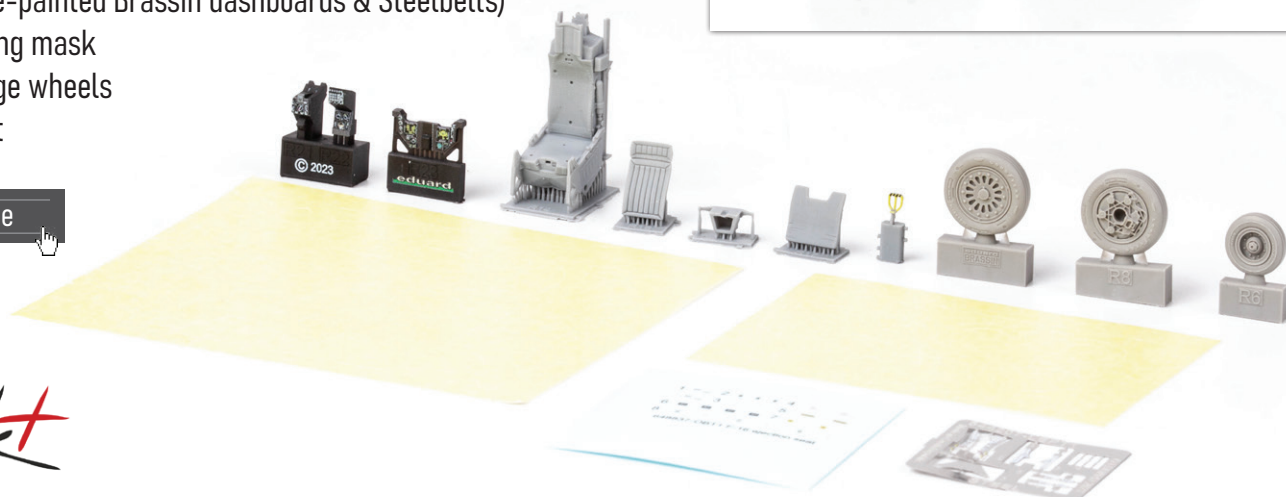
# F-16A MLU LööKplus

1/48 Kinetic

Collection of 4 sets for F-16A MLU in 1/48 scale.

Recommended kit: Kinetic

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels
- ejection seat

[Product page](#)


624004

# Spitfire Mk.IX wheels 5spoke

1/24 Airfix

Brassin set - the undercarriage wheels for Spitfire Mk.IXc in 1/24 scale. The set consists of the main wheels and tail wheel. Easy to assemble, replaces plastic parts. Recommended kit: Airfix

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: yes
- painting mask: yes

[Product page](#)


**635029**

# WWII German lamp headlights PRINT

**1/35**

Brassin set - lamp headlights for German WWII AFV in 1/35 scale. The set consists of 12 headlights of 2 types (6+6). Made by direct 3D printing.

Set contains:

- 3D print: 24 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)

**eduard**  
**BRASSIN**  
*Print*
**635030**

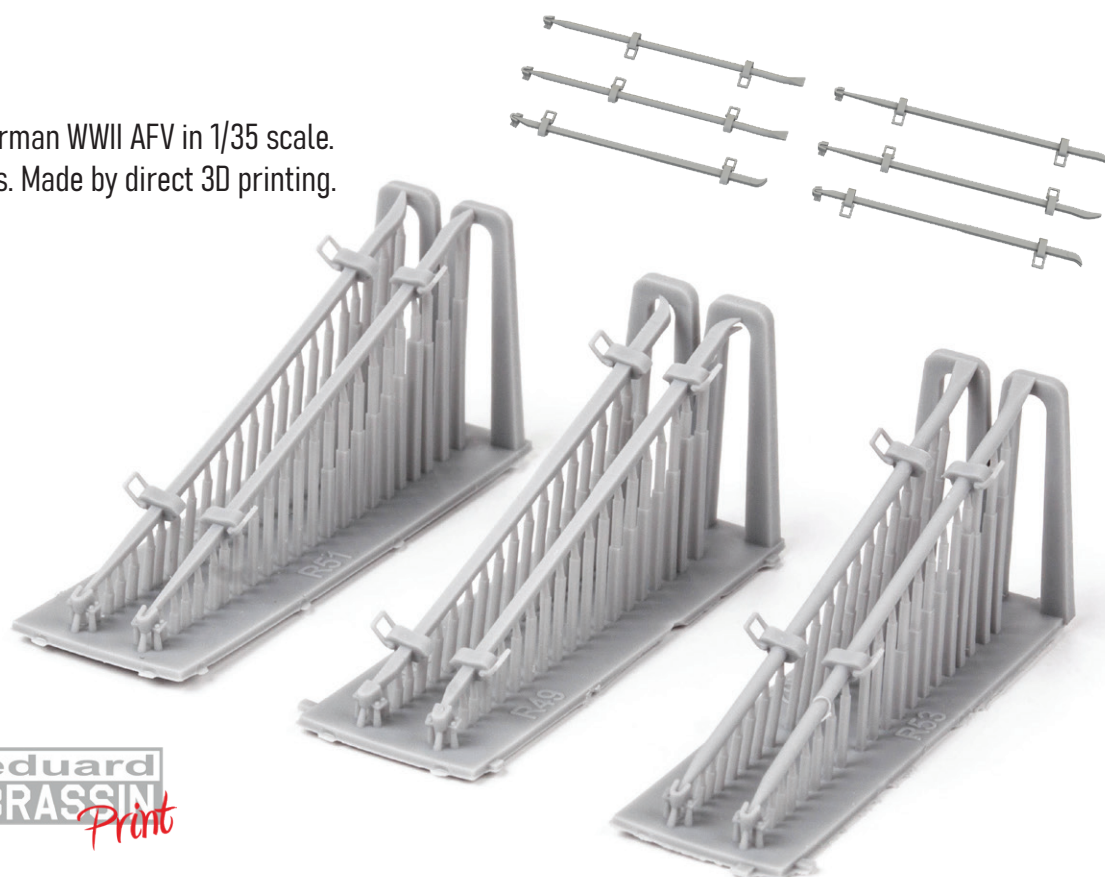
# WWII German crowbars PRINT

**1/35**

Brassin set - crowbars for German WWII AFV in 1/35 scale. The set consists of 6 crowbars. Made by direct 3D printing.

Set contains:

- 3D print: 6 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)

**eduard**  
**BRASSIN**  
*Print*



635031

## WWII German starter crank handles PRINT

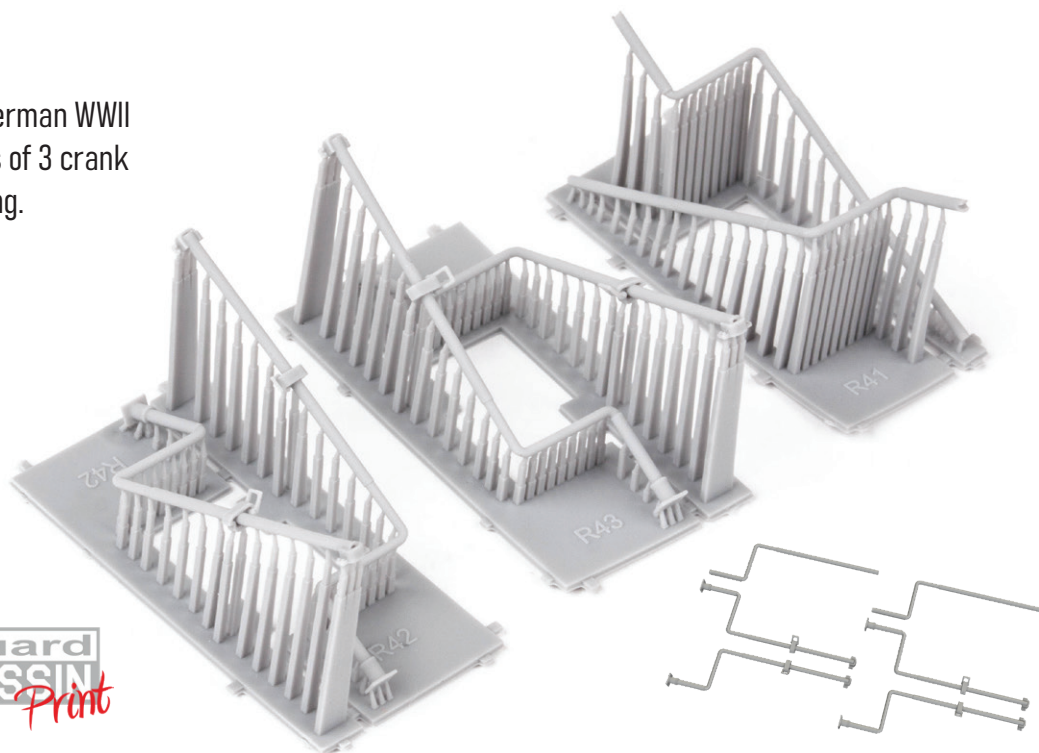
1/35

Brassin set - crank handles for German WWII AFV in 1/35 scale. The set consists of 3 crank handles. Made by direct 3D printing.

Set contains:

- 3D print: 3 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)



635032

## WWII German pickaxes PRINT

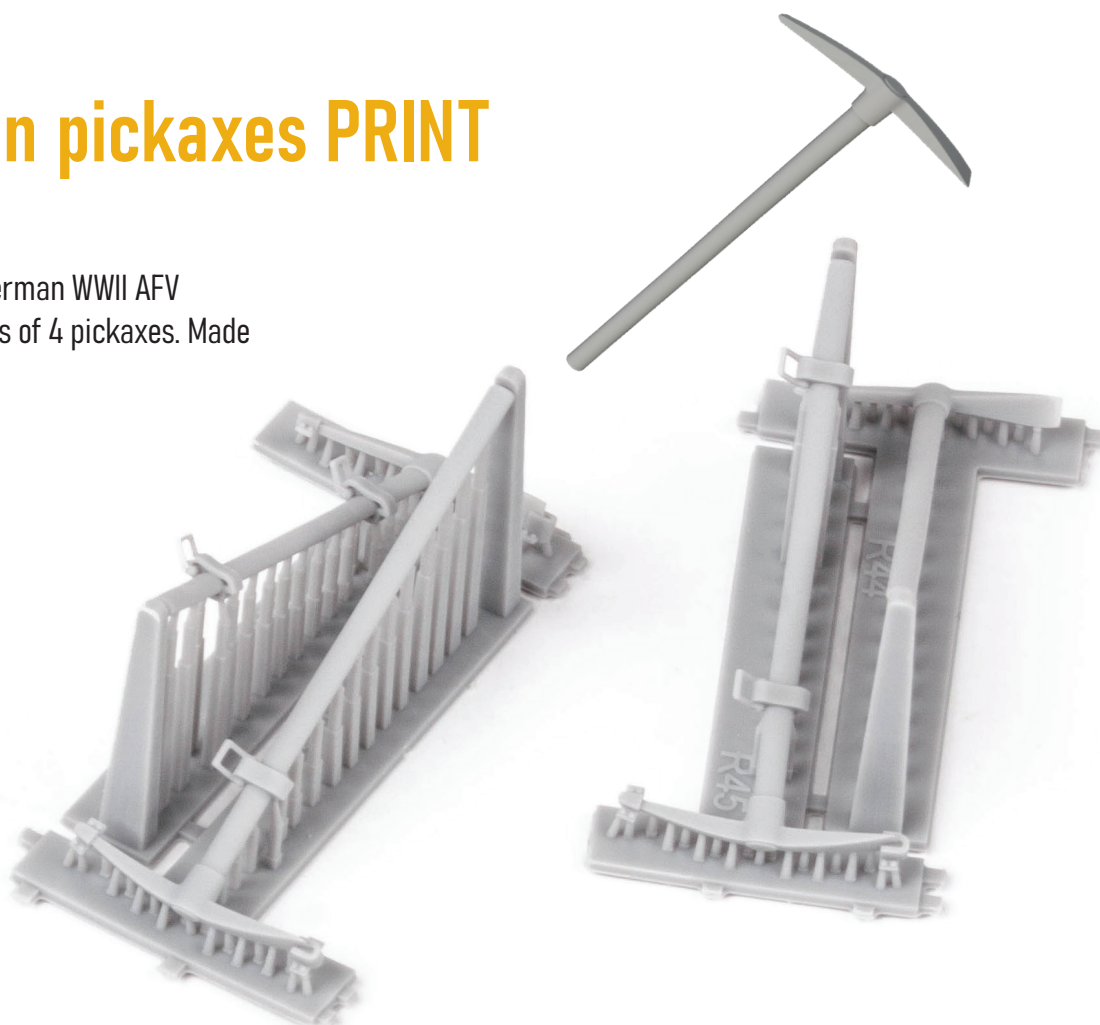
1/35

Brassin set - pickaxes for German WWII AFV in 1/35 scale. The set consists of 4 pickaxes. Made by direct 3D printing.

Set contains:

- 3D print: 4 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)



**648725**

# Sopwith Camel 2F.1 Lewis gun PRINT

**1/48 Eduard**

Brassin set - the guns for Camel 2F.1  
 in 1/48 scale. Made by direct 3D printing.  
 Recommended kit: Eduard

Set contains:

- 3D print: 13 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)

**648824**

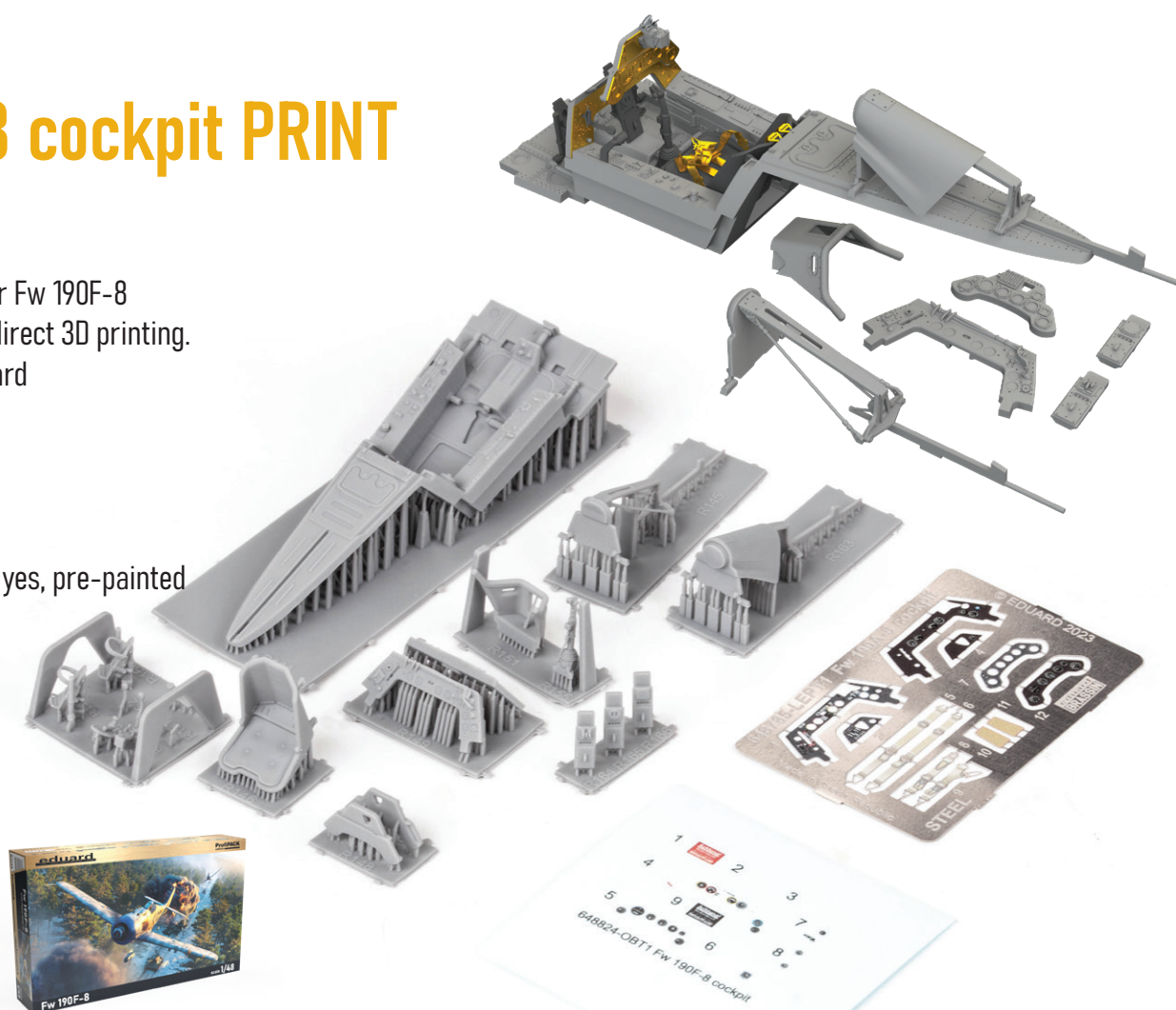
# Fw 190F-8 cockpit PRINT

**1/48 Eduard**

Brassin set - cockpit for Fw 190F-8  
 in 1/48 scale. Made by direct 3D printing.  
 Recommended kit: Eduard

Set contains:

- 3D print: 20 parts
- decals: yes
- photo-etched details: yes, pre-painted
- painting mask: no
- SPACE 3D decals: no

[Product page](#)

**eduard**  
**BRASSIN**



648825

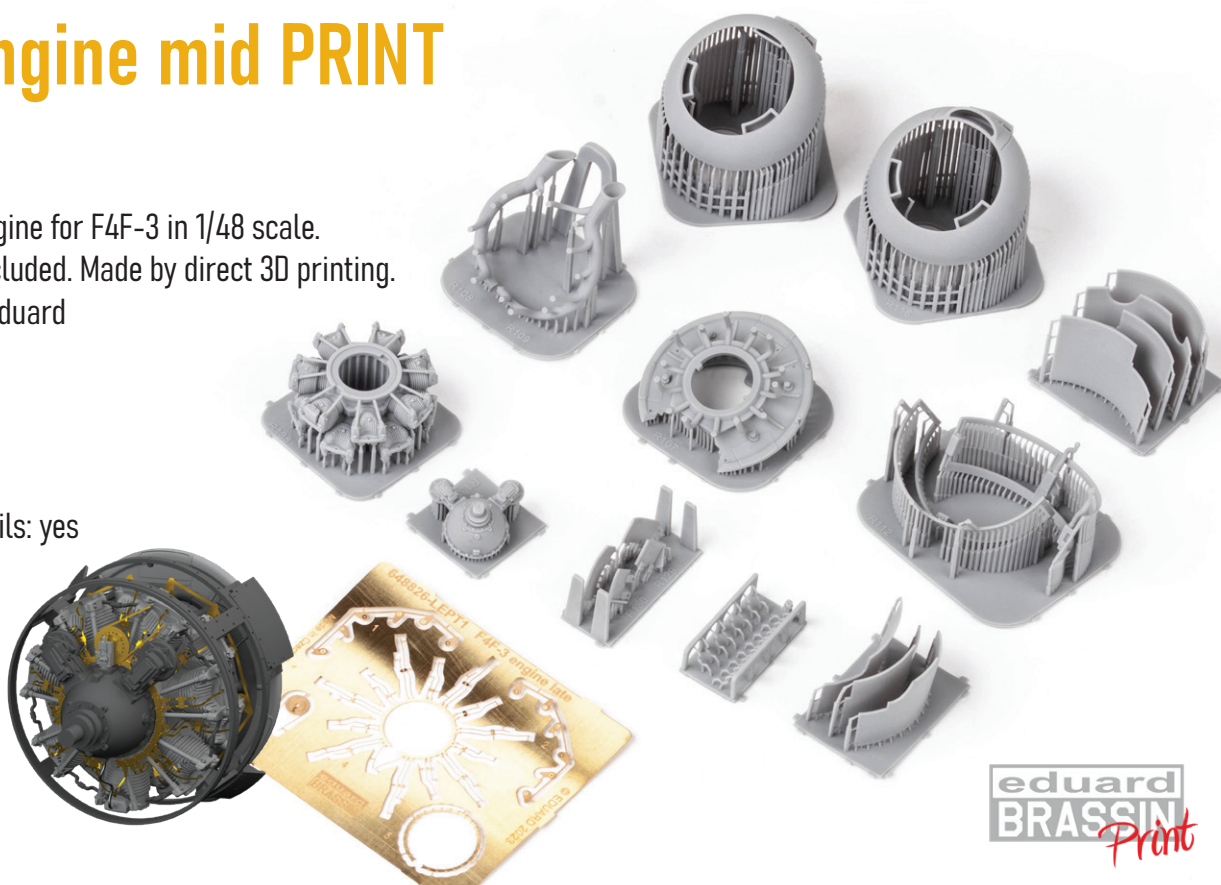
# F4F-3 engine mid PRINT

1/48 Eduard

Brassin set - the engine for F4F-3 in 1/48 scale.  
The cowlings are included. Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 35 parts
- decals: no
- photo-etched details: yes
- painting mask: no


[Product page](#)


Print

648843

# Bf 109G-6 cockpit PRINT

1/48 Eduard

Brassin set - cockpit for Bf 109G-6 in 1/48 scale. Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 21 parts
- decals: yes
- photo-etched details: yes, pre-painted
- painting mask: no
- SPACE 3D decals: no


[Product page](#)


**648859**

# F-35A cockpit PRINT

**1/48 Tamiya**

Brassin set - cockpit for F-35A in 1/48 scale.

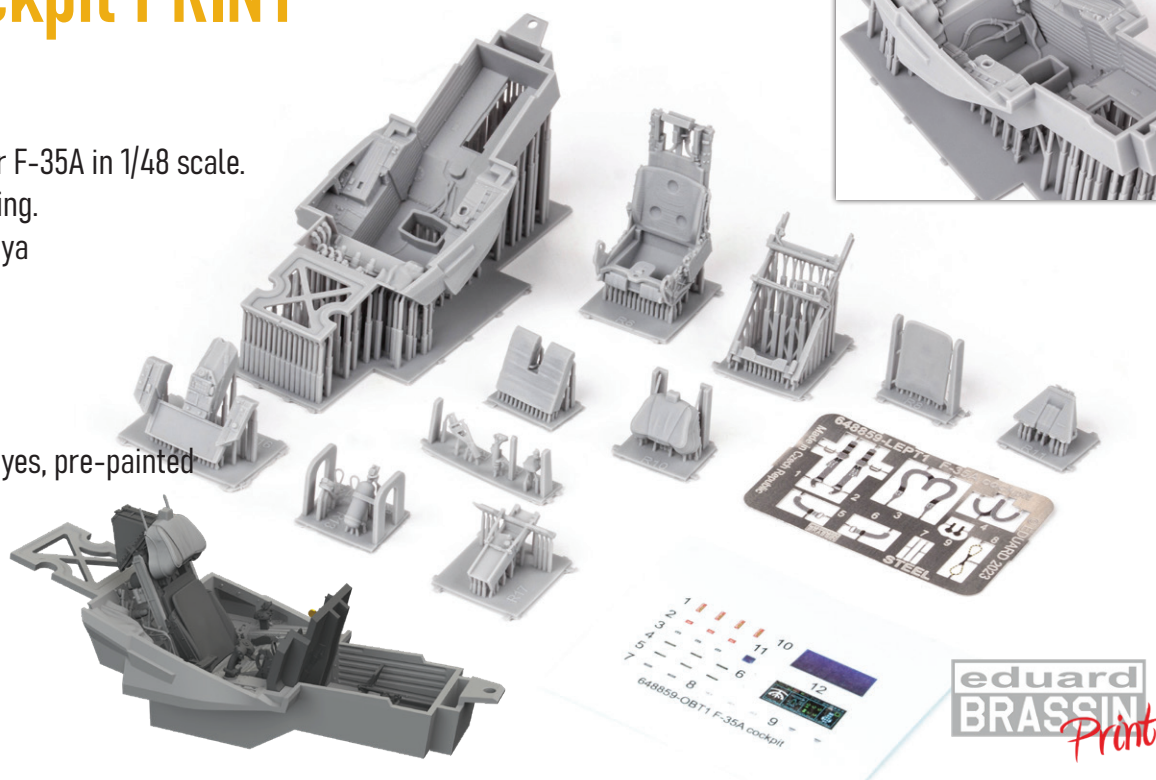
Made by direct 3D printing.

Recommended kit: Tamiya

Set contains:

- 3D print: 15 parts
- decals: yes
- photo-etched details: yes, pre-painted
- painting mask: no
- SPACE 3D decals: no

Product page



**eduard**  
**BRASSIN**

*Print*

**648862**

# Bf 110G radio equipment

**1/48 Eduard**

Brassin set - pre-painted radio equipment

for Bf 110G in 1/48 scale.

Recommended kit: Eduard

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: no

Product page



**eduard**  
**BRASSIN**

*Print*



648863

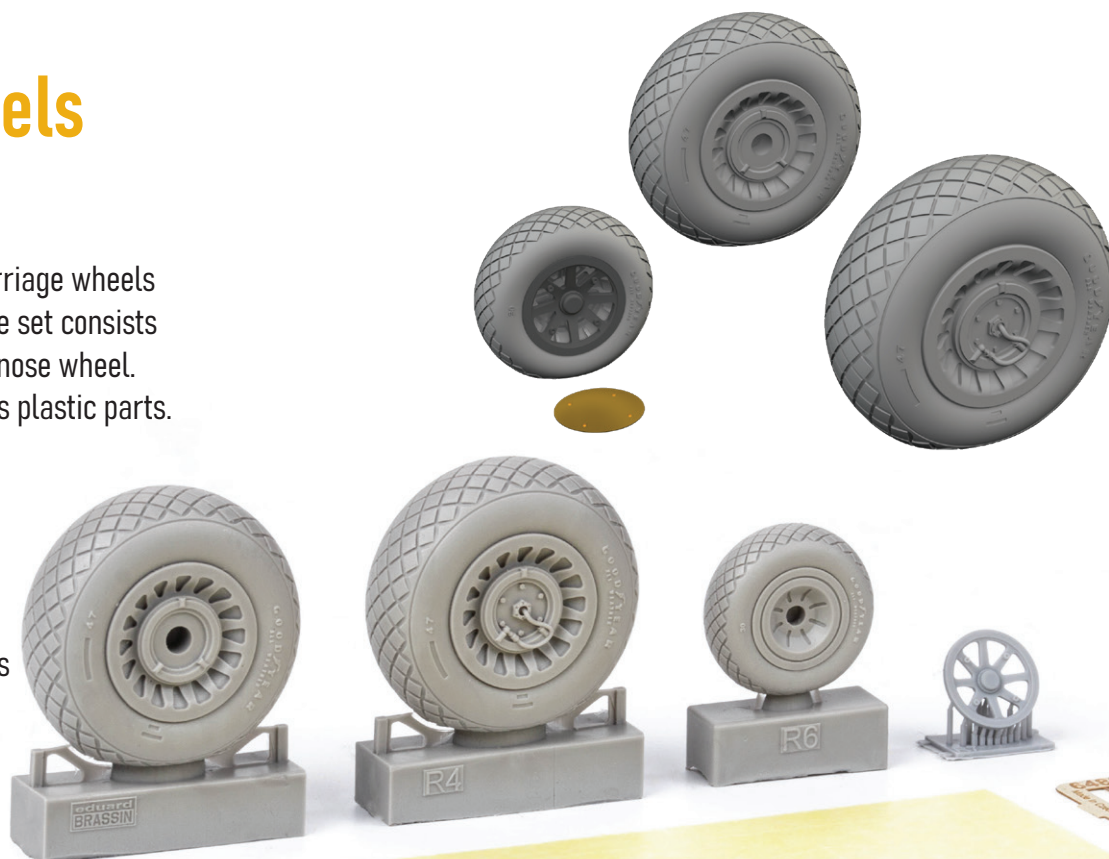
## B-25J wheels

1/48 HKM

Brassin set - the undercarriage wheels for B-25J in 1/48 scale. The set consists of the main wheels and a nose wheel. Easy to assemble, replaces plastic parts. Recommended kit: HKM

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: yes
- painting mask: yes

[Product page](#)


648864

## Mi-8MT wheels

1/48 Zvezda

Brassin set - the undercarriage wheels for Mi-8MT in 1/48 scale. The set consists of the main wheels and nose wheels. Easy to assemble, replaces plastic parts. Recommended kit: Zvezda

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: yes

[Product page](#)


**648865**

## Mi-17 wheels

**1/48 AMK**

Brassin set - the undercarriage wheels for Mi-17 in 1/48 scale. The set consists of the main wheels and nose wheels. Easy to assemble, replaces plastic parts. Recommended kit: AMK

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: yes

[Product page](#)

**648867**

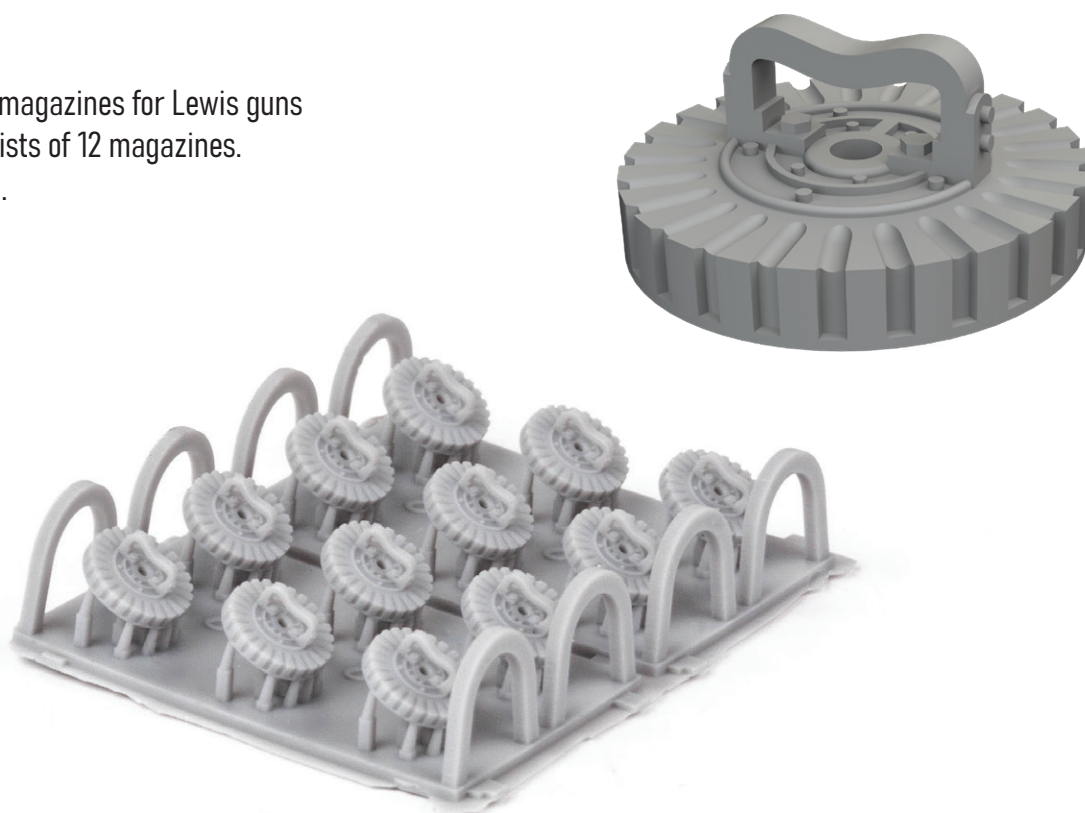
## Lewis 47-cartridges ammo magazines PRINT

**1/48 Tamiya**

Brassin set - ammunition magazines for Lewis guns in 1/48 scale. The set consists of 12 magazines. Made by direct 3D printing.

Set contains:

- 3D print: 12 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)




648869

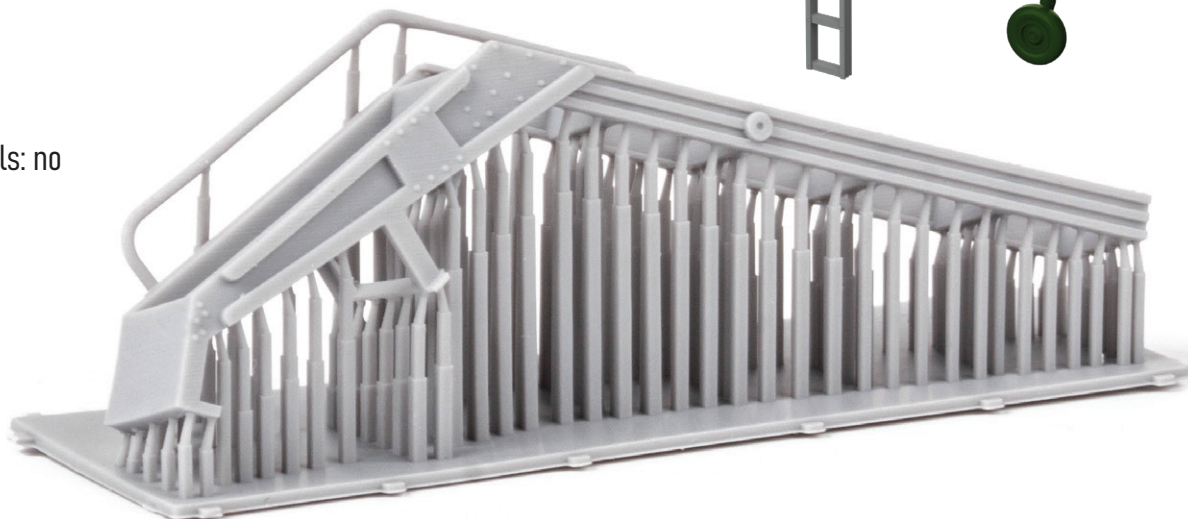
## F-16 ladder PRINT

1/48

Brassin set - the ladder for F-16 in 1/48 scale.  
Easy to assemble. Made by direct 3D printing.

Set contains:

- 3D print: 1 part
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)
eduard  
BRASSIN  
*Print*

648870

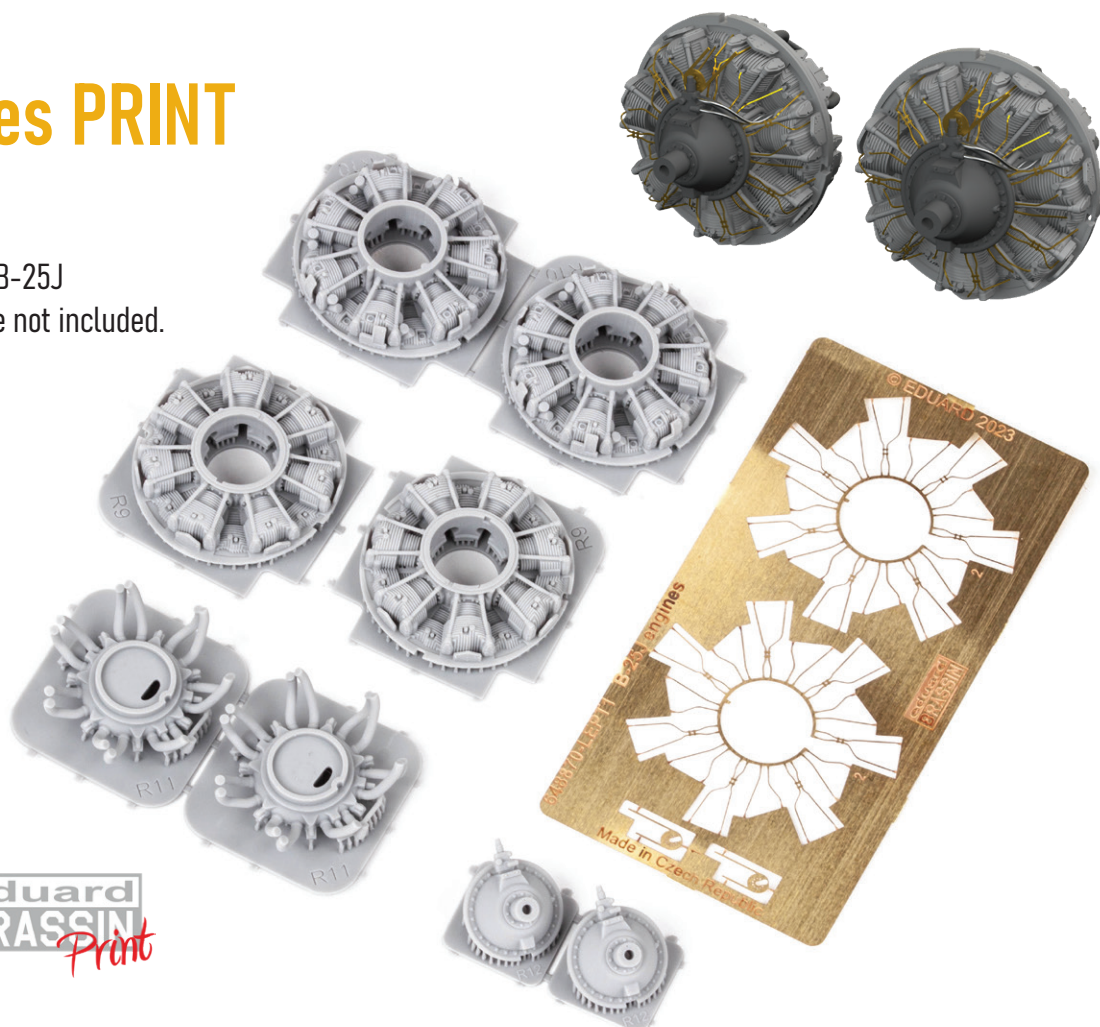
## B-25J engines PRINT

1/48 HKM

Brassin set - two engines for B-25J  
in 1/48 scale. The cowlings are not included.  
Made by direct 3D printing.  
Recommended kit: HKM

Set contains:

- 3D print: 8 parts
- decals: no
- photo-etched details: yes
- painting mask: no

[Product page](#)
eduard  
BRASSIN  
*Print*

648871

## B-25J bombsight PRINT

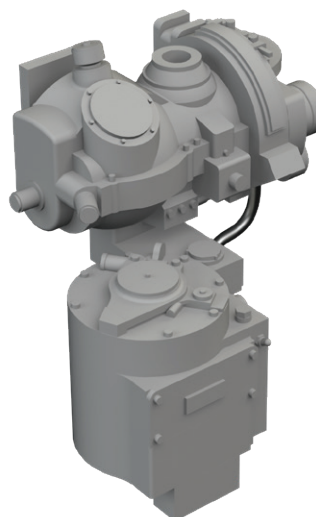
1/48 HKM

Brassin set - gunsight for B-25J in 1/48 scale.  
Made by direct 3D printing. Recommended kit: HKM

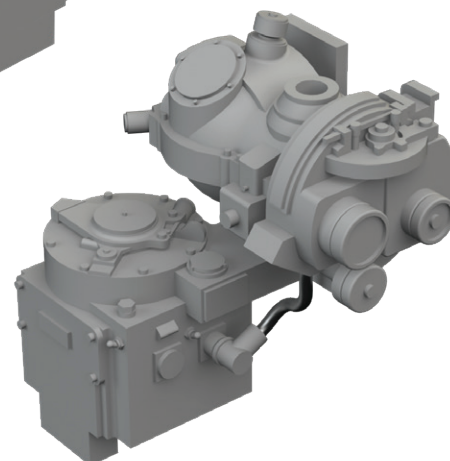
Set contains:

- 3D print: 1 part
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)



**eduard**  
**BRASSIN**  
*Print*



672313

## Bf 109F propeller early PRINT

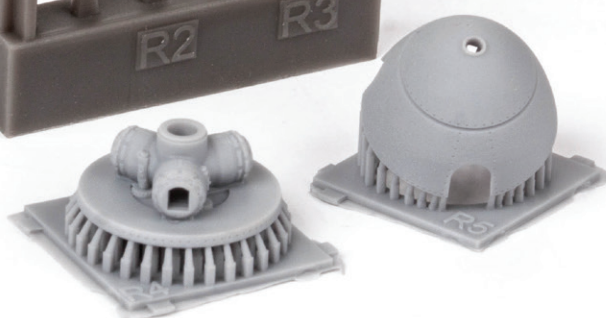
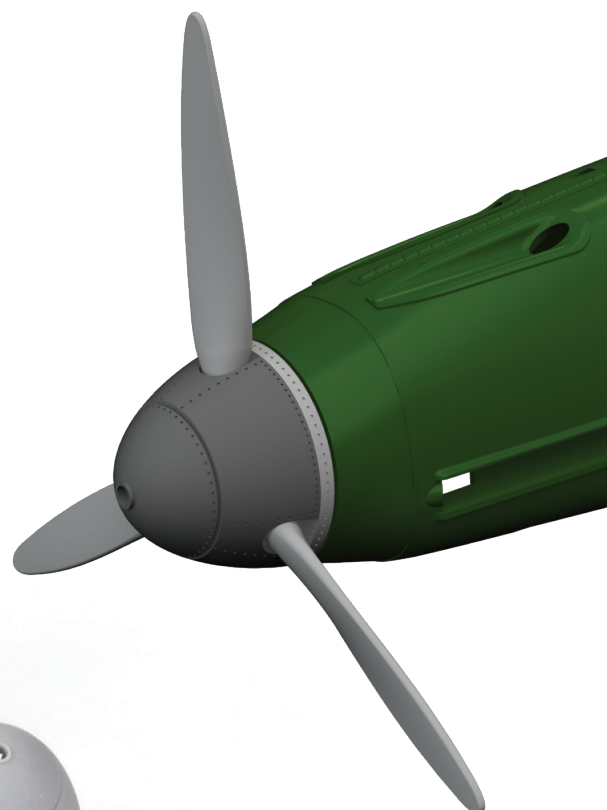
1/72 Eduard

Brassin set - the propeller for Bf 109F in 1/72 scale.  
The spinner could be removed.  
Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- resin: 4 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)



**eduard**  
**BRASSIN**  
*Print*





672314

## Bf 109F propeller late PRINT

1/72 Eduard

Brassin set - the propeller for Bf 109F in 1/72 scale.  
The spinner could be removed. Made by direct  
3D printing. Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- resin: 4 parts
- decals: no
- photo-etched details: no
- painting mask: no

[Product page](#)
eduard  
BRASSIN

Print



672315

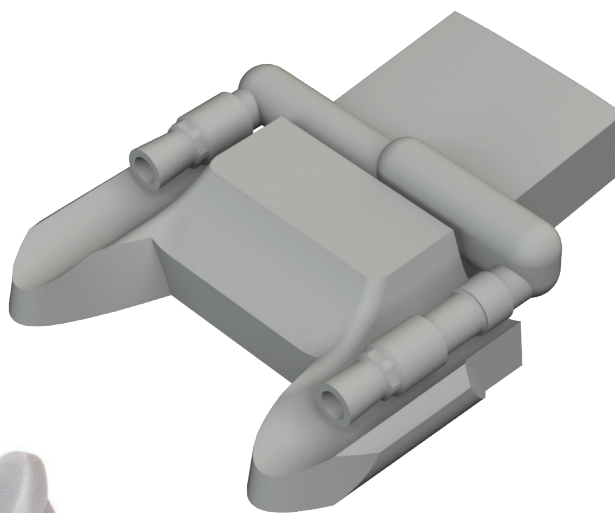
## Bf 109F gun barrels PRINT

1/72 Eduard

Brassin set - fuselage gun barrels for Bf 109F in  
1/72 scale. Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 1 part
- decals: no
- photo-etched details: yes
- painting mask: no

[Product page](#)
eduard  
BRASSIN

Print



672316

# Bf 109F wheels PRINT

1/72 Eduard

Brassin set - the undercarriage wheels for Bf 109F in 1/72 scale. The set consists of the main wheels and a tail wheel. Easy to assemble, replaces plastic parts. Made by direct 3D printing. Recommended kit: Eduard

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: yes



Product page

**eduard**  
**BRASSIN**  
*Print*

**KPM Zdice p.s. a GT CUP IPMS CZE" ve spolupráci s městem Hořovice**

**zve všechny příznivce plastického modelářství na XVIII. ročník soutěže:**



# Hořovická „Padesátka“ 2023

**která se koná 17. června 2023 ve Společenském domě Hořovice.**

**Pro veřejnost je výstava otevřena od 10.00 do 15.00 hod.**

**OBČERSTVENÍ JE ZAJIŠTĚNO V MÍSTĚ KONÁNÍ SOUTĚŽE**

**Vstupné dobrovolné - výtěžek bude věnován projektu "Modeláři pomáhají dětem"**

MODELÁŘI  
POMÁHAJÍ **DĚTEM**

Sponzoři:



HOŘOVICE

*Aero*

MEMBER

airbrushcentrum.cz



tactac  
agency

CREALITY



eduard



MN-MODELAR



SIN648105

# F4F-3 w/ early engine ADVANCED

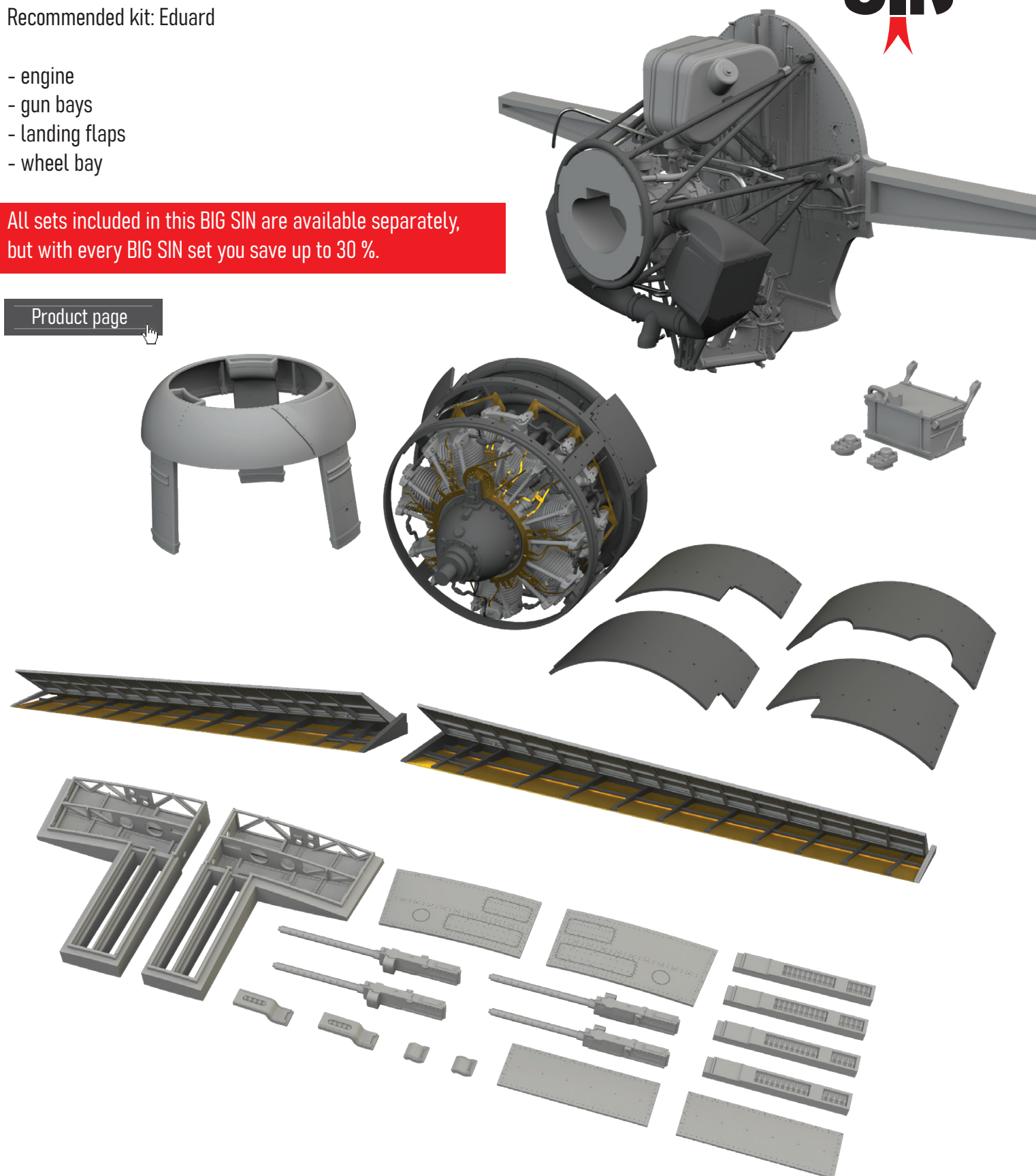
## 1/48 Eduard

Collection of 4 sets for F4F-4 in 1/48 scale.

Recommended kit: Eduard

- engine
- gun bays
- landing flaps
- wheel bay

All sets included in this BIG SIN are available separately, but with every BIG SIN set you save up to 30 %.

[Product page](#)

SIN68106

# F-16 armament w/ Maverick missiles

1/48 Kinetic



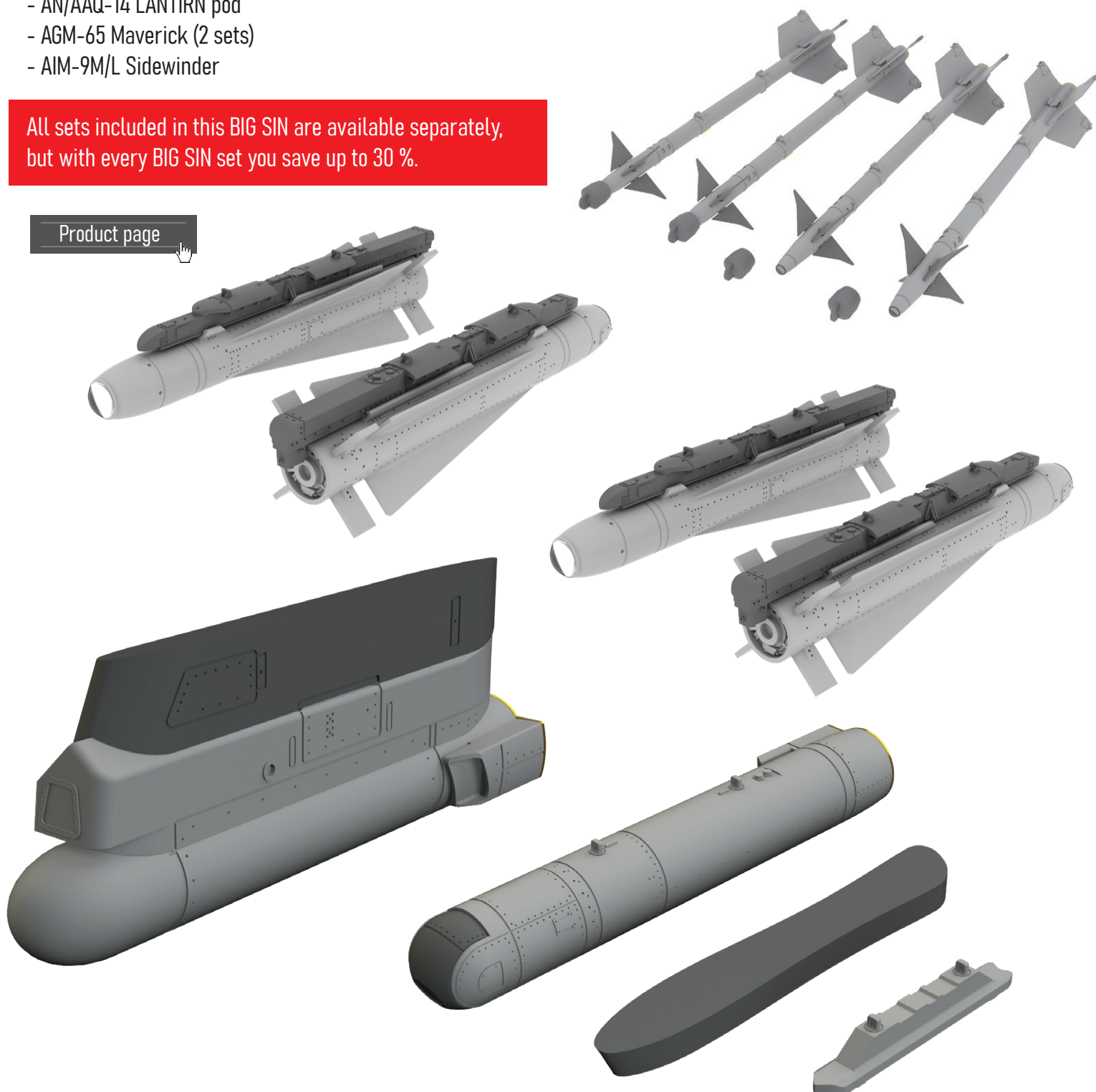
Collection of 5 sets for F-16 in 1/48 scale.

Recommended kit: Kinetic

- AN/AAQ-13 LANTIRN pod
- AN/AAQ-14 LANTIRN pod
- AGM-65 Maverick (2 sets)
- AIM-9M/L Sidewinder

All sets included in this BIG SIN are available separately, but with every BIG SIN set you save up to 30 %.

Product page

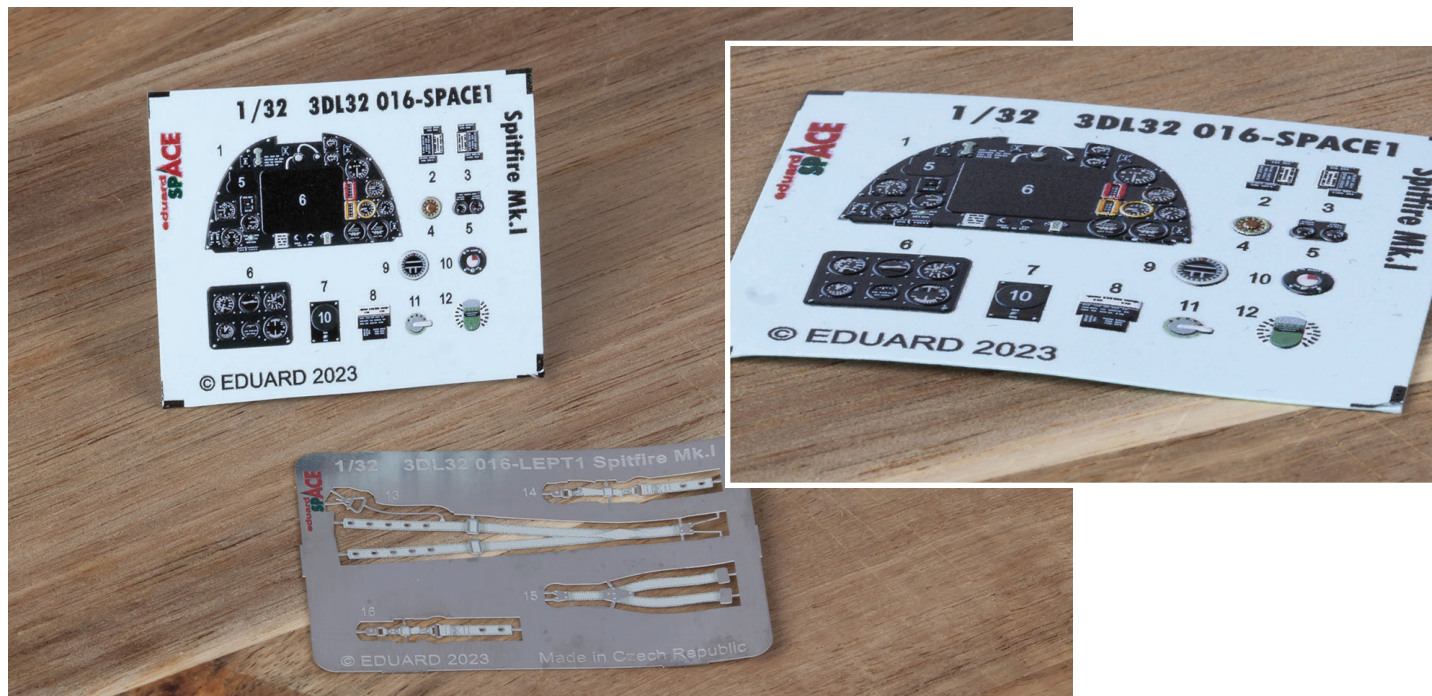




EASY  
APPLICATION

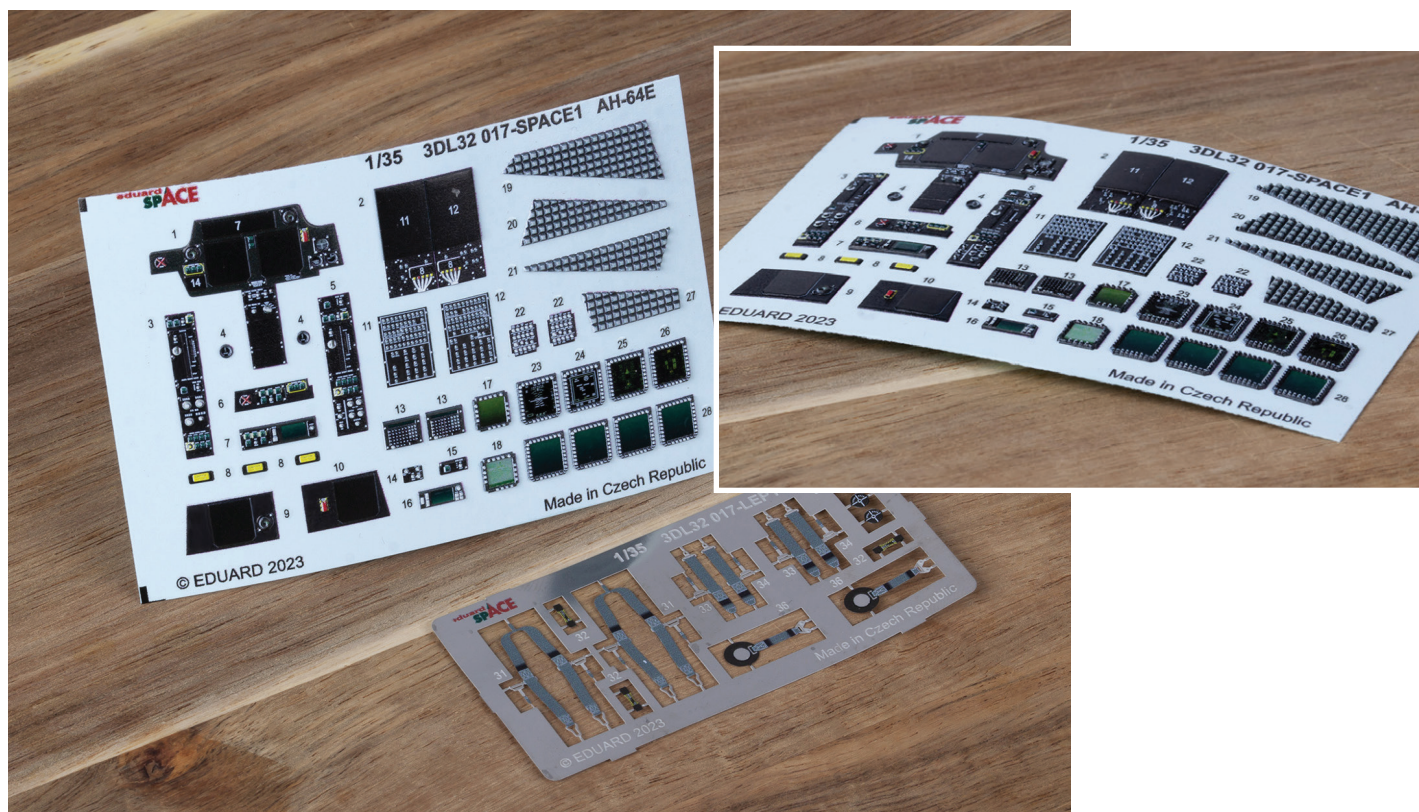
3DL32016 **Spitfire Mk.I SPACE** 1/32 Kotare

Product page



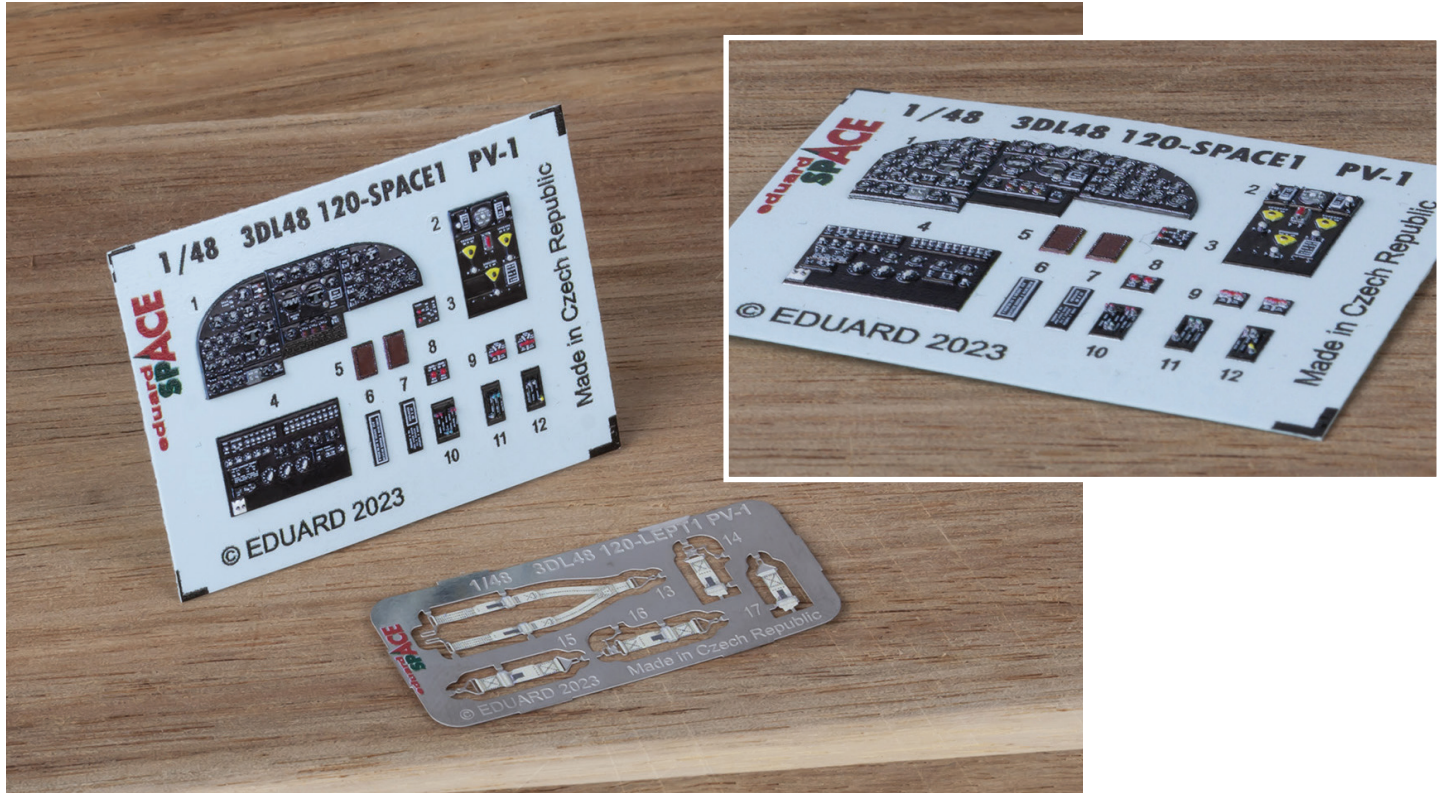
3DL32017 **AH-64E SPACE** 1/35 Takom

Product page

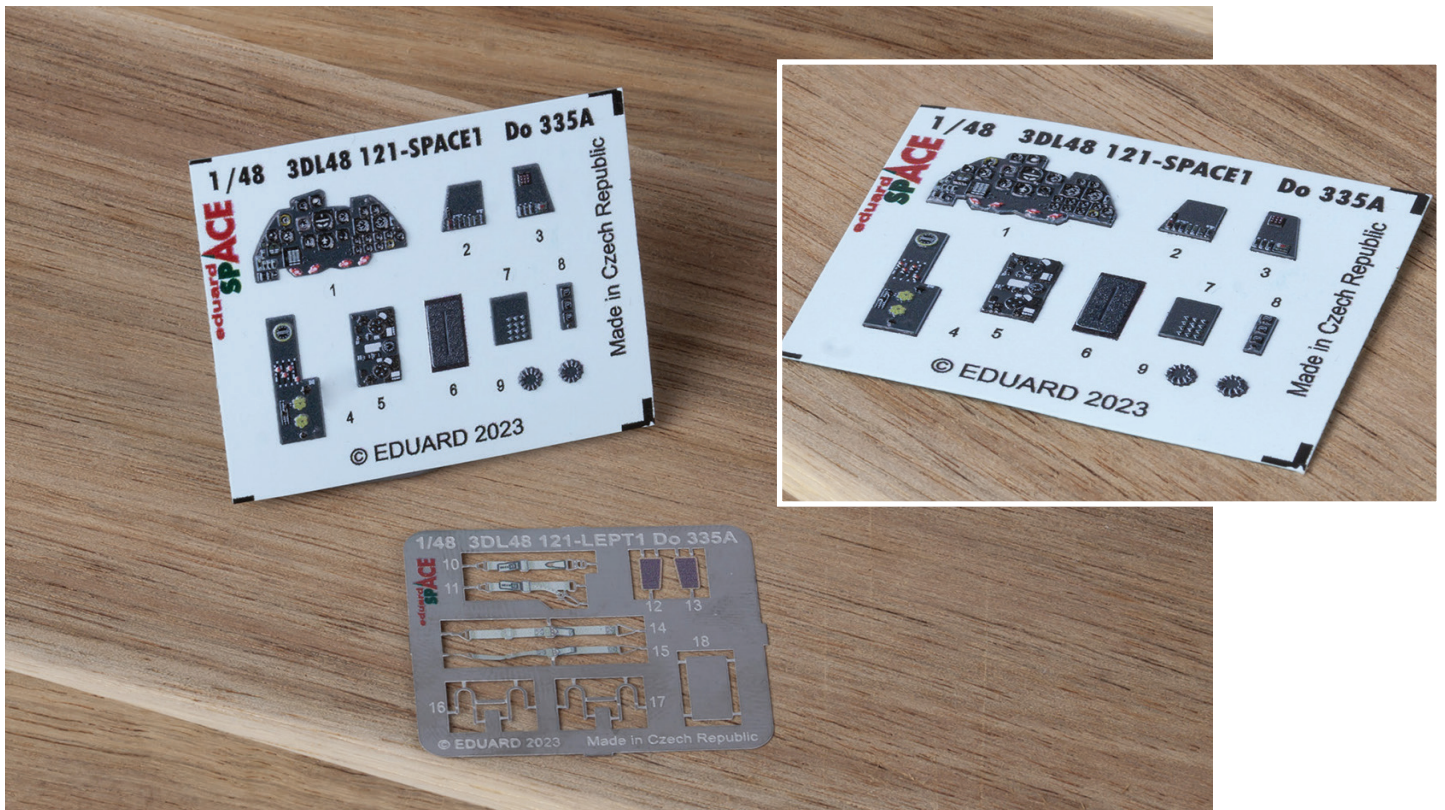




# 3DL48120 PV-1 SPACE 1/48 Academy/Revell

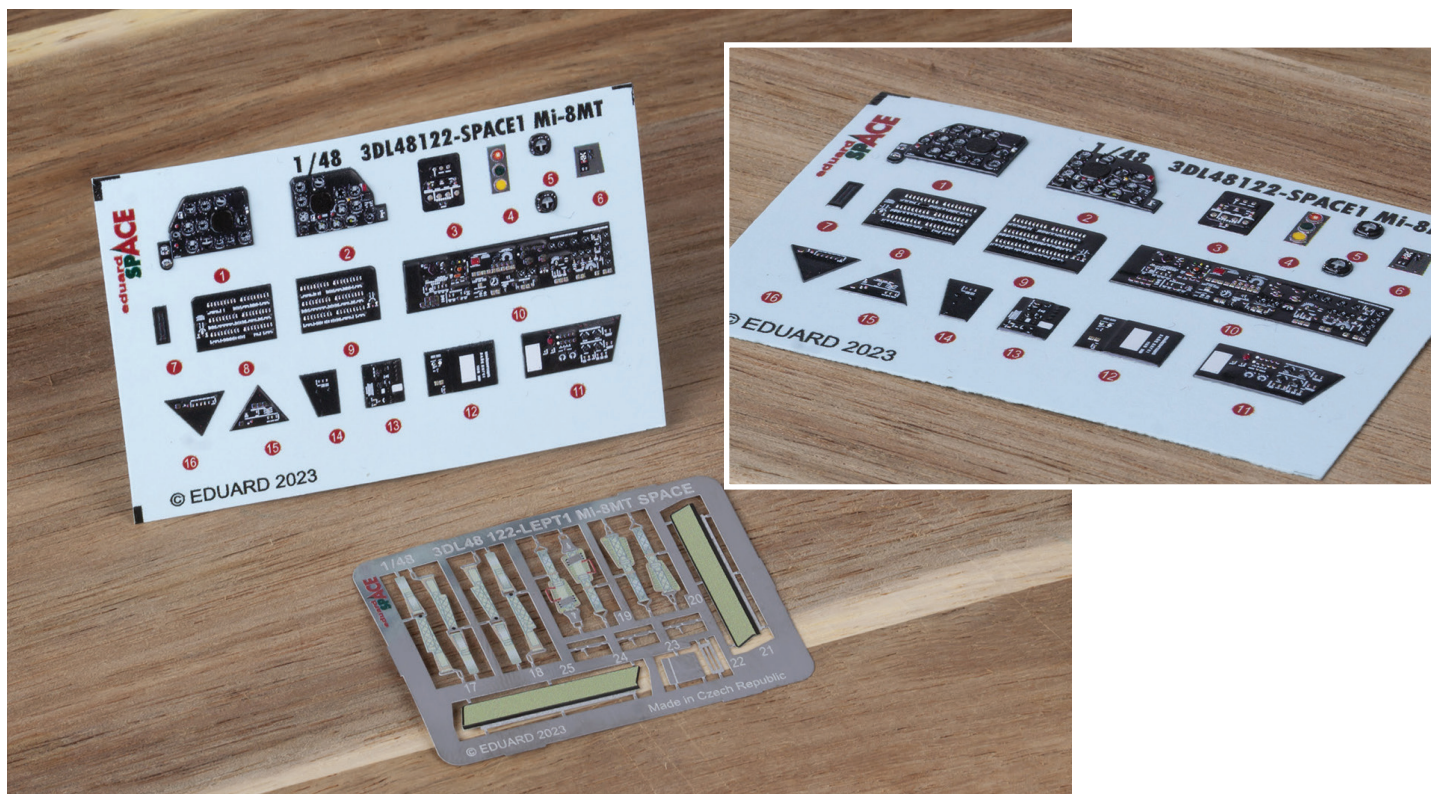
[Product page](#)


# 3DL48121 Do 335A SPACE 1/48 Tamiya

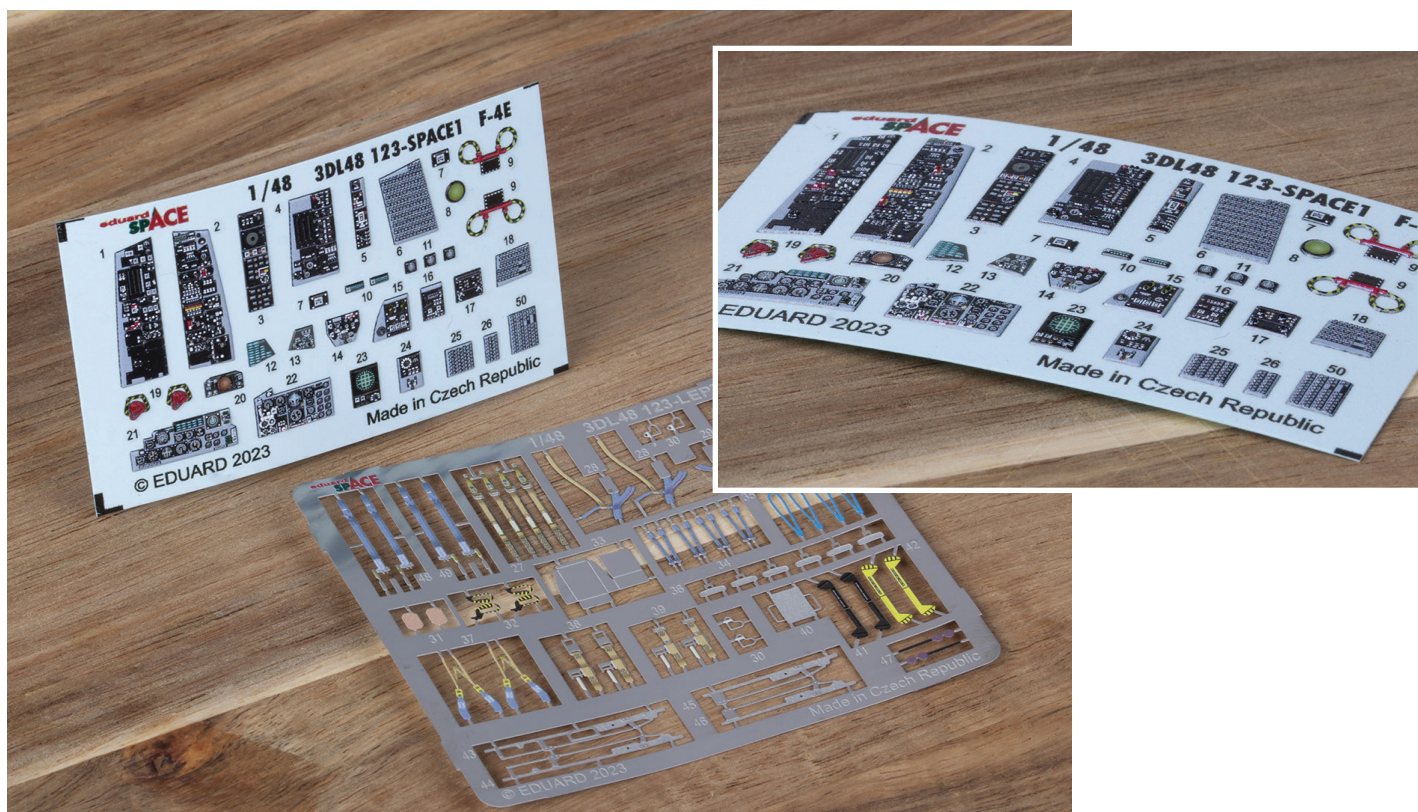
[Product page](#)




# 3DL48122 Mi-8MT SPACE 1/48 Trumpeter

[Product page](#)


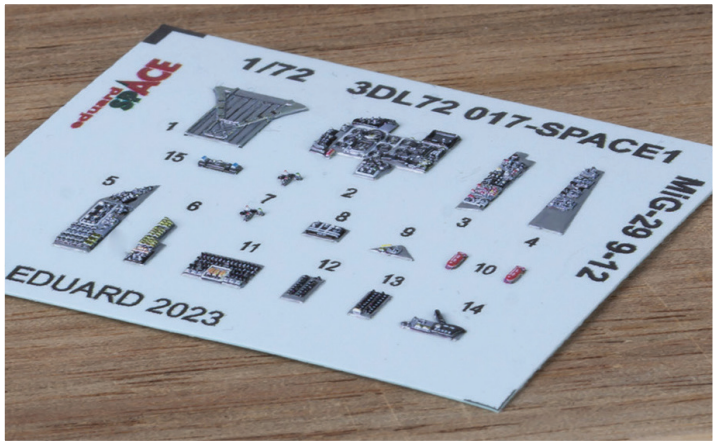
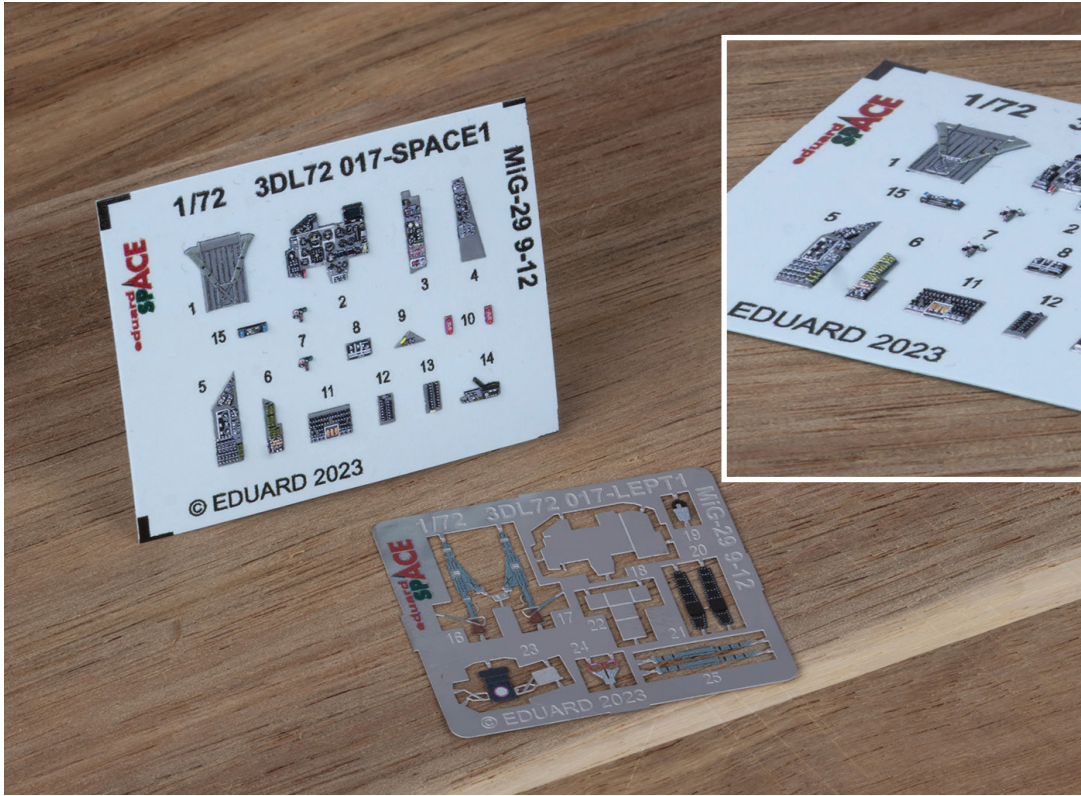
# 3DL48123 F-4E SPACE 1/48 Meng

[Product page](#)




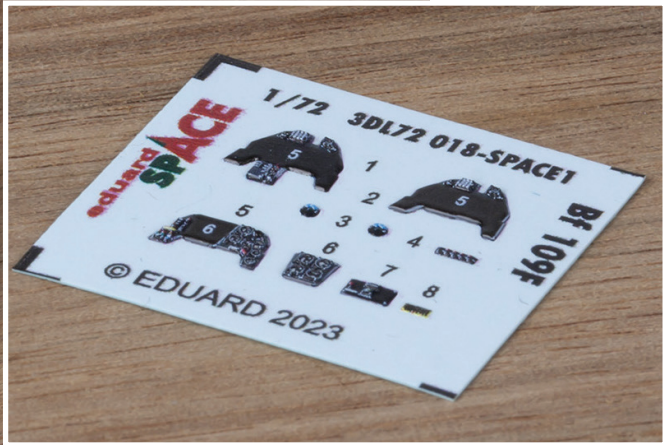
# 3DL72017 MiG-29 9-12 SPACE 1/72 Great Wall Hobby

[Product page](#)



# 3DL72018 Bf 109F SPACE 1/72 Eduard

[Product page](#)

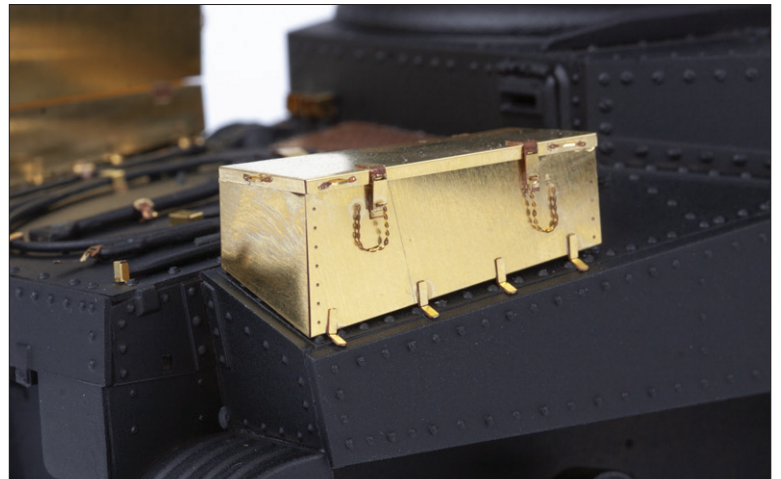
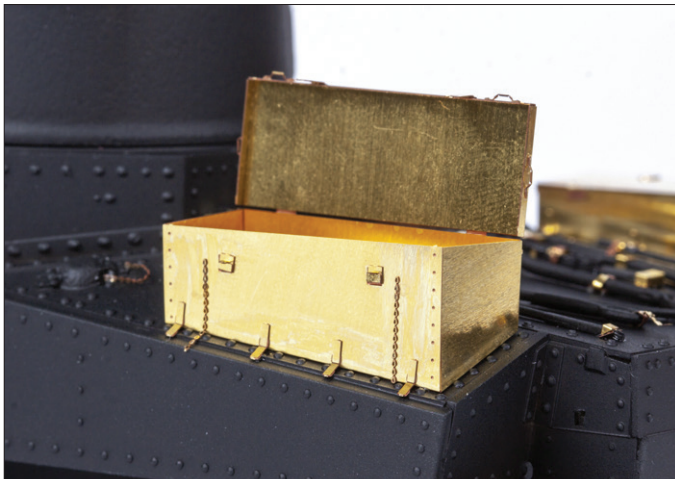
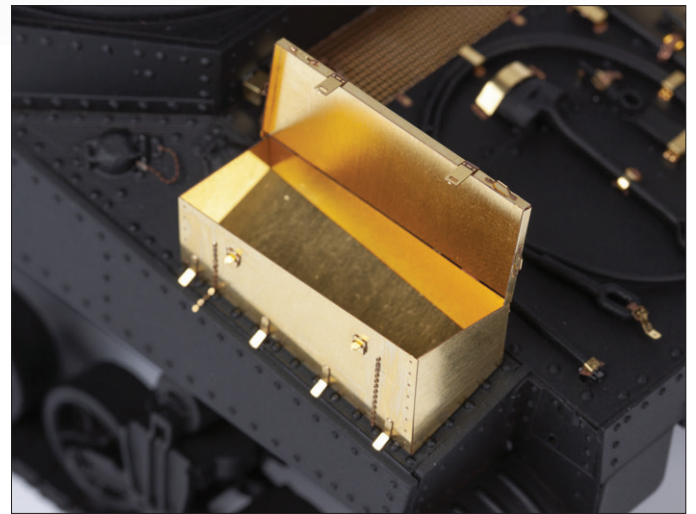
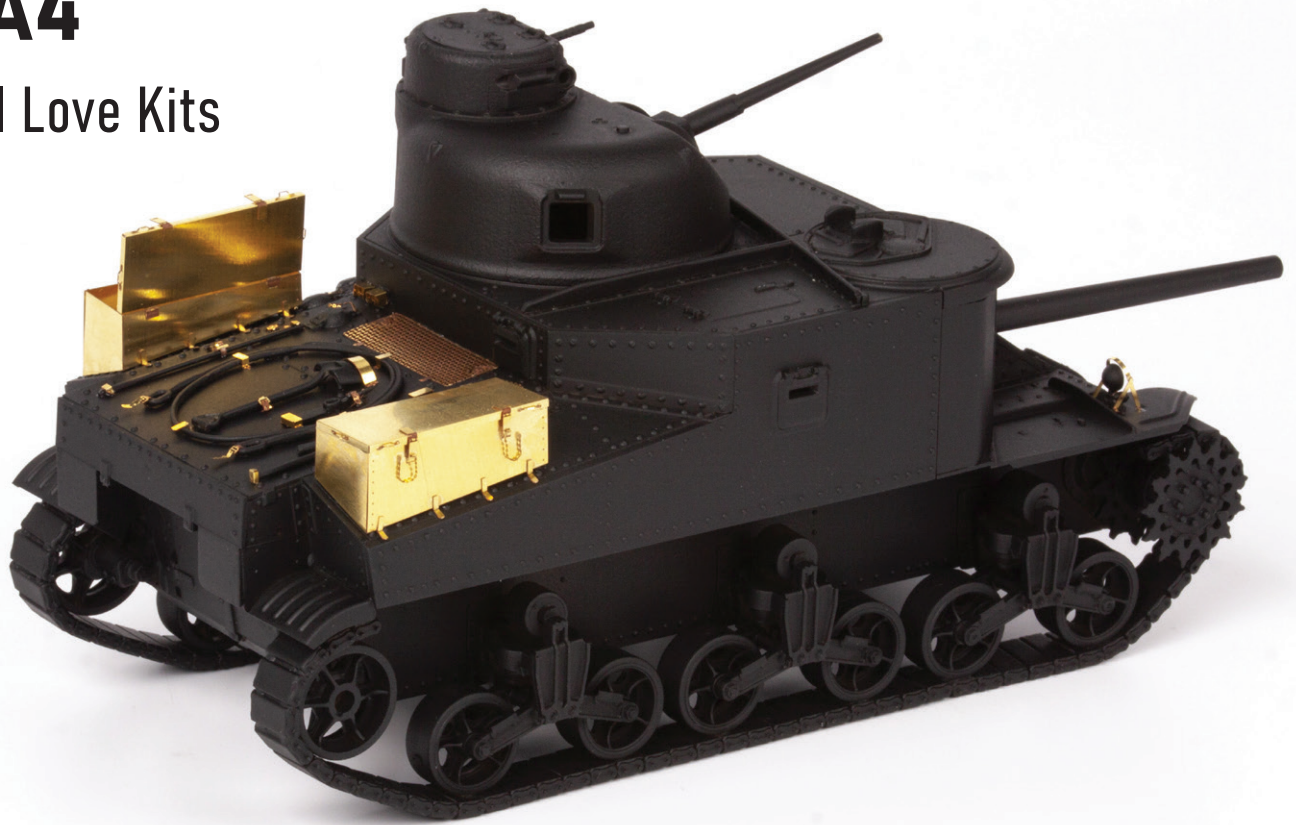




# M3A4

1/35 I Love Kits

36501

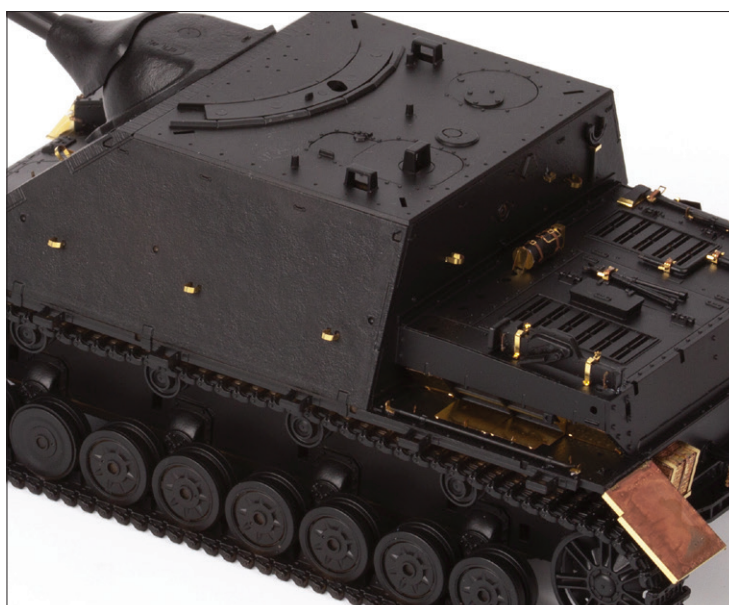
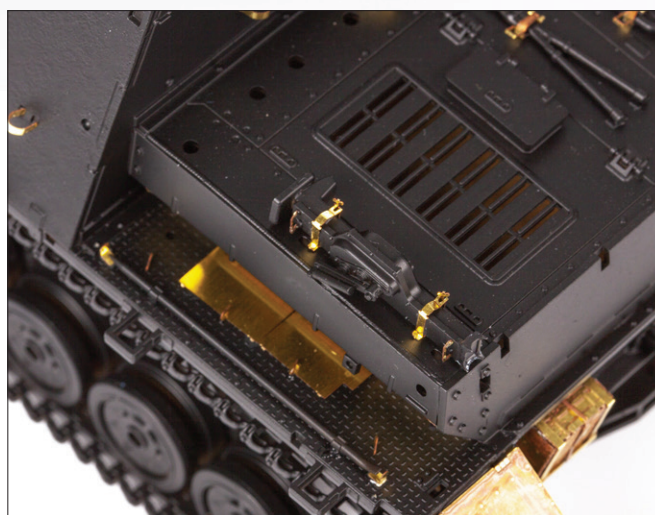




# Panzer IV/70 (A)

1/35 Tamiya

36502





# Scammell Commander w/ 62t semitrailer

1/35 Hobby Boss

36503

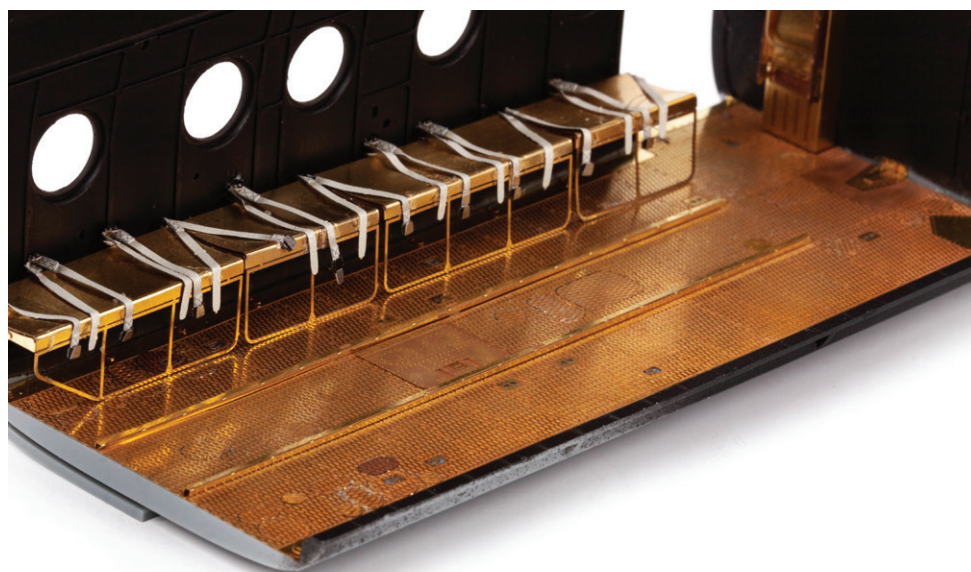




# Mi-8MT cargo floor

1/48 Trumpeter

481111



# Mi-8MT cargo seats

1/48 Trumpeter 481112



# Mi-8MT

1/48 Trumpeter 491356





# Do 335A

1/48 Tamiya

491354





# Do 335A

1/48 Tamiya

491354



# Mig-29 9-12

1/72 Gret Wall Hobby

73802

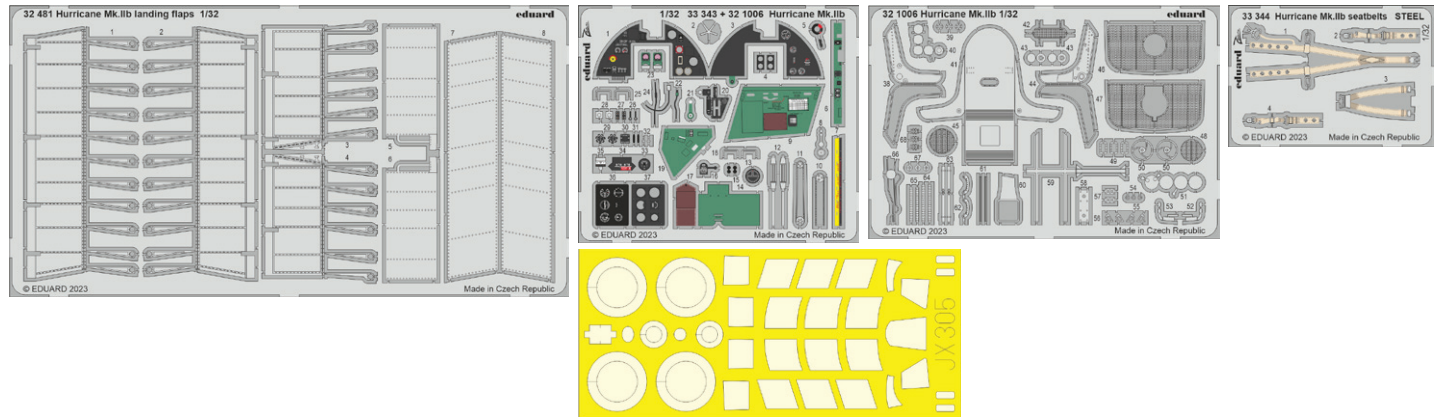




## BIG33151 Hurricane Mk.IIb 1/32 Revell

- 32481 Hurricane Mk.IIb landing flaps 1/32
- 321006 Hurricane Mk.IIb 1/32
- 33344 Hurricane Mk.IIb seatbelts STEEL 1/32
- JX305 Hurricane Mk.IIb 1/32

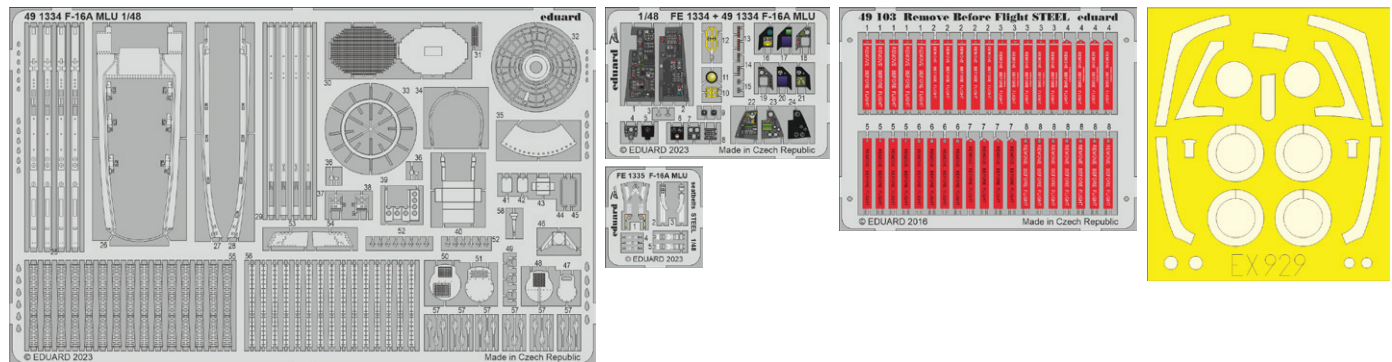
Product page



## BIG49367 F-16A MLU 1/48 Kinetic

- 49103 Remove Before Flight STEEL
- 491334 F-16A MLU 1/48
- FE1335 F-16A MLU seatbelts STEEL 1/48
- EX929 F-16A MLU 1/48

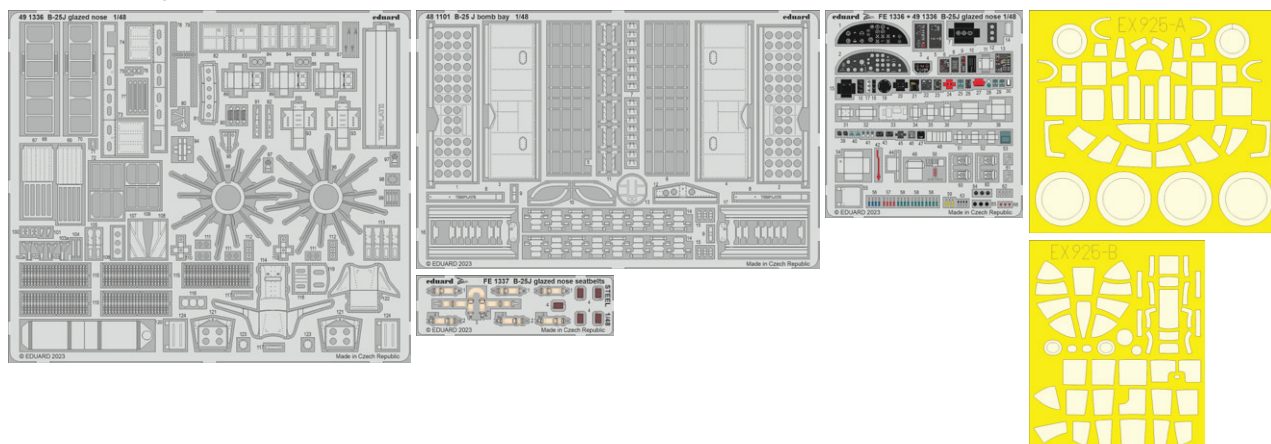
Product page



## BIG49368 B-25J glazed nose 1/48 HKM

- 481101 B-25J bomb bay 1/48
- 491336 B-25J glazed nose 1/48
- FE1337 B-25J glazed nose seatbelts STEEL 1/48
- EX925 B-25J glazed nose 1/48

Product page

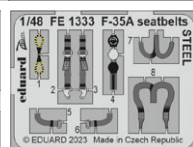
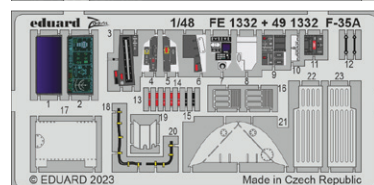
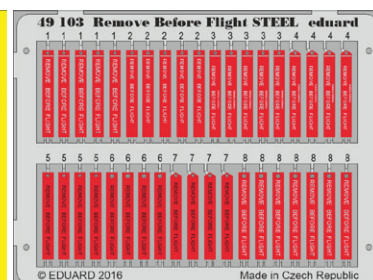
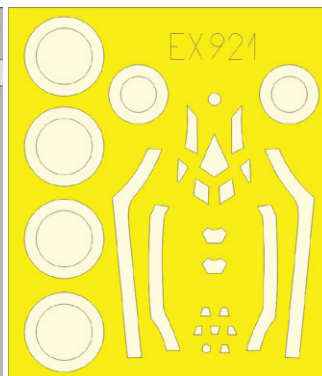
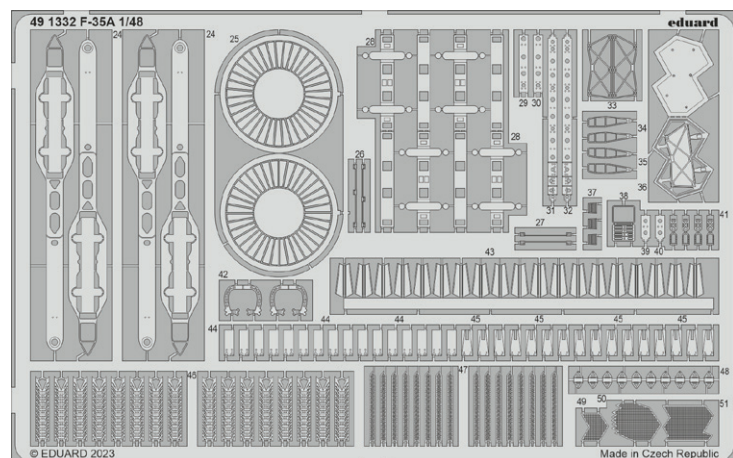


All sets included in this BIG ED are available separately,  
but with every BIG ED set you save up to 30%.

## BIG49369 **F-35A** 1/48 Tamiya

49103 Remove Before Flight STEEL  
491332 F-35A 1/48  
FE1333 F-35A seatbelts STEEL 1/48  
EX921 F-35A 1/48

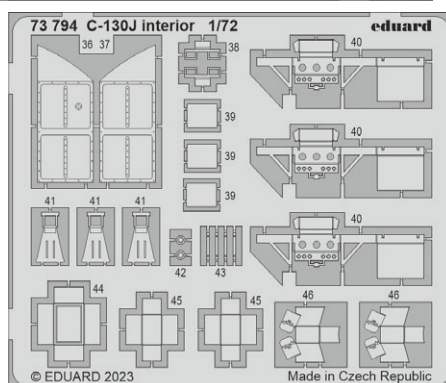
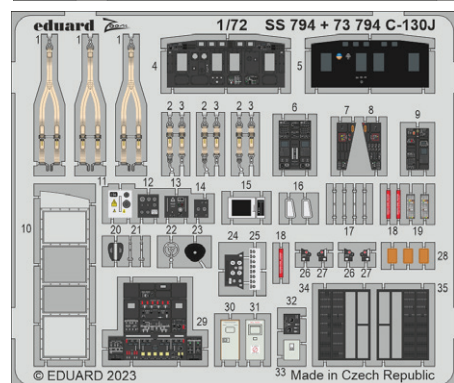
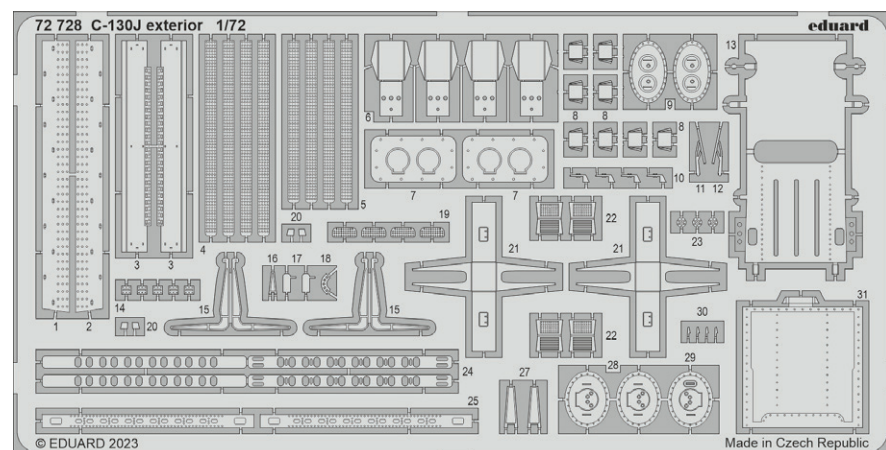
Product page



## BIG72173 **C-130J PART I** 1/72 Zvezda

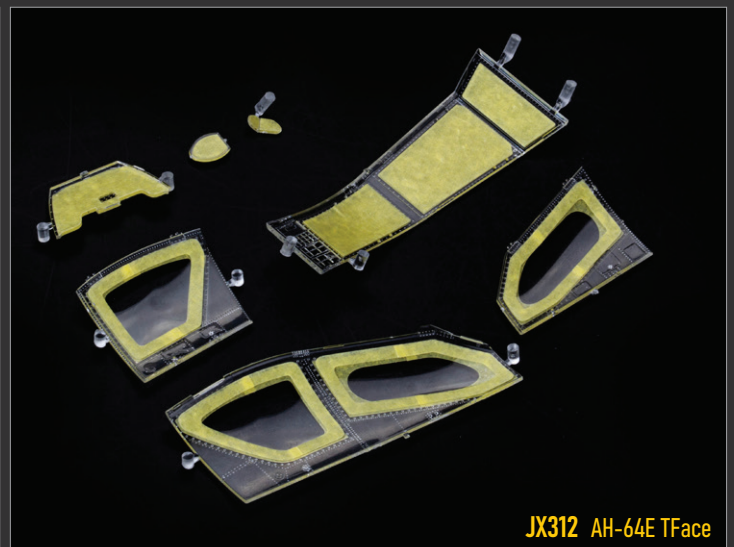
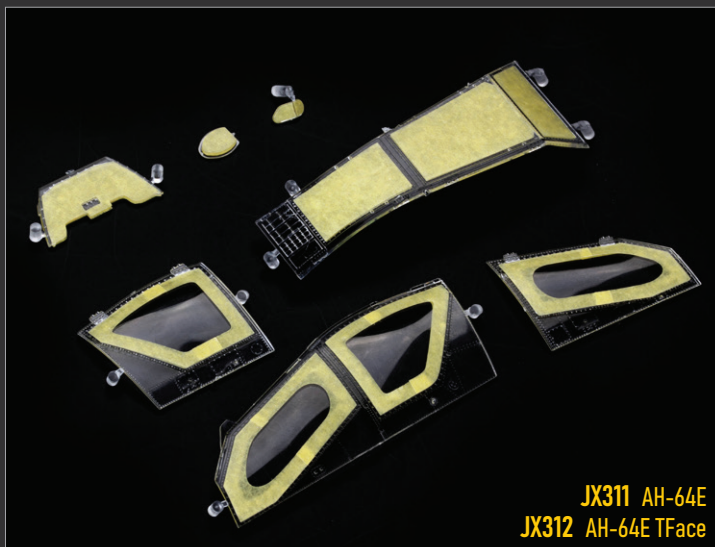
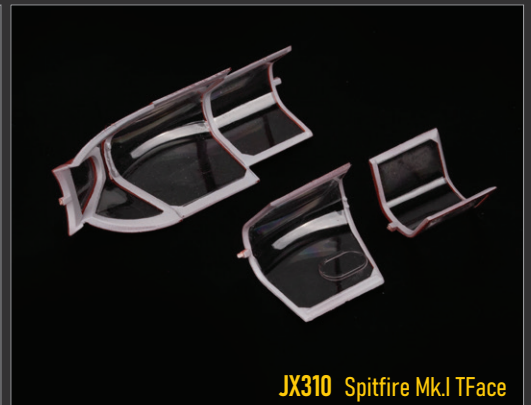
72728 C-130J exterior 1/72  
73794 C-130J interior 1/72  
SS794 C-130J 1/72

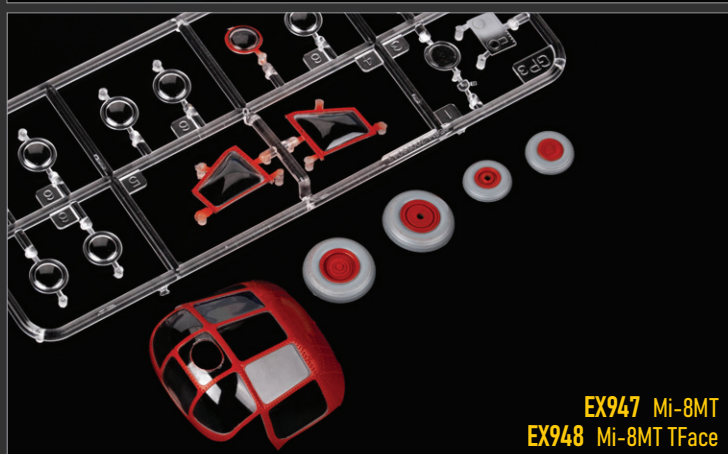
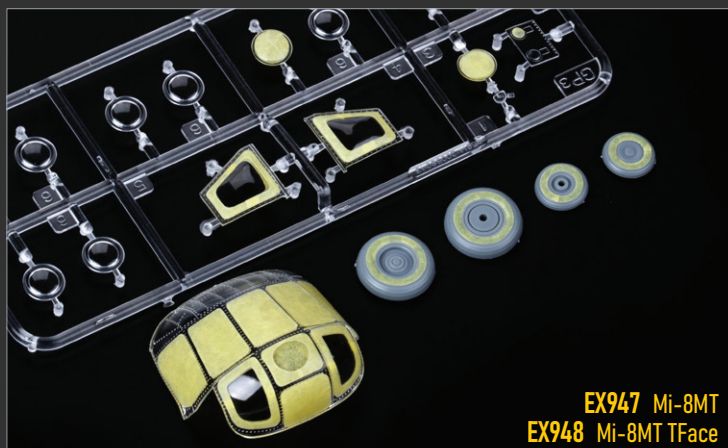
Product page





**JX309 Spitfire Mk.I**  
 1/32 Kotare  
**JX310 Spitfire Mk.I TFace**  
 1/32 Kotare  
**JX311 AH-64E**  
 1/35 Takom  
**JX312 AH-64E TFace**  
 1/35 Takom  
**EX947 Mi-8MT**  
 1/48 Trumpeter  
**EX948 Mi-8MT TFace**  
 1/48 Trumpeter  
**EX949 F-4E**  
 1/48 Meng  
**EX950 F-4E TFace**  
 1/48 Meng  
**EX951 A6M2 Zero Type 21 Weekend**  
 1/48 Eduard  
**EX952 Tempest Mk.II Weekend**  
 1/48 Eduard  
**CX648 MiG-29 9-12**  
 1/72 Great Wall Hobby







## KITS

|       |                                        |      |           |
|-------|----------------------------------------|------|-----------|
| 82173 | Sopwith 2F.1 Camel                     | 1/48 | ProfiPACK |
| 2142  | WUNDERSCHÖNE NEUE MASCHINEN pt.1 DC    | 1/48 | Limited   |
| 84189 | A6M2 Zero Type 21                      | 1/48 | Weekend   |
| 84190 | Tempest Mk.II                          | 1/48 | Weekend   |
| 82111 | Bf 109G-6 late serie <b>Re-release</b> | 1/48 | ProfiPACK |

## PE-SETS

|        |                                      |       |                  |
|--------|--------------------------------------|-------|------------------|
| 53294  | USS Missouri BB-63 part 3            | 1/350 | Hobby Boss       |
| 32483  | Spitfire Mk.I landing flaps          | 1/32  | Kotare           |
| 321009 | Spitfire Mk.I                        | 1/32  | Kotare           |
| 321010 | AH-64E                               | 1/35  | Takom            |
| 36501  | M3A4                                 | 1/35  | I Love Kits      |
| 36502  | Panzer IV/70 (A)                     | 1/35  | Tamiya           |
| 36503  | Scammel Commander w/ 62t semitrailer | 1/35  | Hobby Boss       |
| 481111 | Mi-8MT cargo floor                   | 1/48  | Trumpeter        |
| 481112 | Mi-8MT cargo seats                   | 1/48  | Trumpeter        |
| 491354 | Do 335A                              | 1/48  | Tamiya           |
| 491356 | Mi-8MT                               | 1/48  | Trumpeter        |
| 491357 | Mi-8MT cargo seatbelts STEEL         | 1/48  | Trumpeter        |
| 491358 | F-4E                                 | 1/48  | Meng             |
| 73802  | MiG-29 9-12                          | 1/72  | Great Wall Hobby |

## ZOOMS

|        |                               |      |           |
|--------|-------------------------------|------|-----------|
| 33349  | Spitfire Mk.I                 | 1/32 | Kotare    |
| 33350  | Spitfire Mk.I seatbelts STEEL | 1/32 | Kotare    |
| 33351  | AH-64E                        | 1/35 | Takom     |
| 33352  | AH-64E seatbelts STEEL        | 1/35 | Takom     |
| FE1354 | Do 335A                       | 1/48 | Tamiya    |
| FE1355 | Do 335A seatbelts STEEL       | 1/48 | Tamiya    |
| FE1356 | Mi-8MT                        | 1/48 | Trumpeter |
| FE1357 | Mi-8MT seatbelts STEEL        | 1/48 | Trumpeter |
| FE1358 | F-4E                          | 1/48 | Meng      |
| FE1359 | F-4E seatbelts STEEL          | 1/48 | Meng      |
| FE1360 | Tempest Mk.II Weekend         | 1/48 | Eduard    |
| FE1361 | A6M2 Zero Type 21 Weekend     | 1/48 | Eduard    |

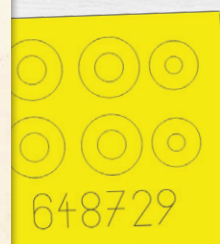
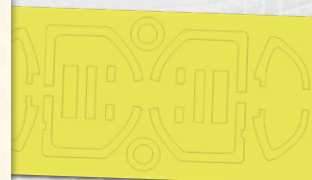
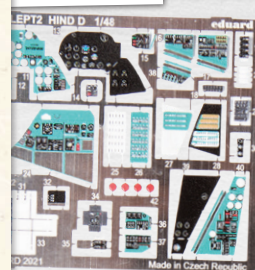
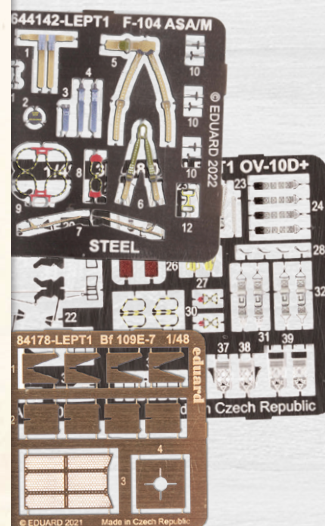
## MASKS

|       |                           |      |                  |
|-------|---------------------------|------|------------------|
| JX309 | Spitfire Mk.I             | 1/32 | Kotare           |
| JX310 | Spitfire Mk.I TFace       | 1/32 | Kotare           |
| JX311 | AH-64E                    | 1/35 | Takom            |
| JX312 | AH-64E TFace              | 1/35 | Takom            |
| EX947 | Mi-8MT                    | 1/48 | Trumpeter        |
| EX948 | Mi-8MT TFace              | 1/48 | Trumpeter        |
| EX949 | F-4E                      | 1/48 | Meng             |
| EX950 | F-4E TFace                | 1/48 | Meng             |
| EX951 | A6M2 Zero Type 21 Weekend | 1/48 | Eduard           |
| EX952 | Tempest Mk.II Weekend     | 1/48 | Eduard           |
| CX648 | MiG-29 9-12               | 1/72 | Great Wall Hobby |

LIMITED

**ProfiPACK**  
edition

**WEEKEND**  
edition





## BIG ED

|          |                   |      |         |
|----------|-------------------|------|---------|
| BIG33151 | Hurricane Mk.IIb  | 1/32 | Revell  |
| BIG49367 | F-16A MLU         | 1/48 | Kinetic |
| BIG49368 | B-25J glazed nose | 1/48 | HKM     |
| BIG49369 | F-35A             | 1/48 | Tamiya  |
| BIG72173 | C-130J PART I     | 1/72 | Zvezda  |

## BRASSIN

|        |                                          |      |                |
|--------|------------------------------------------|------|----------------|
| 644215 | Mi-8MT LööK                              | 1/48 | Zvezda         |
| 644216 | PV-1 LööK                                | 1/48 | Academy/Revell |
| 624004 | Spitfire Mk.IX wheels 5spoke             | 1/24 | Airfix         |
| 635029 | WWII German lamp headlights PRINT        | 1/35 |                |
| 635030 | WWII German crowbars PRINT               | 1/35 |                |
| 635031 | WWII German starter crank handles PRINT  | 1/35 |                |
| 635032 | WWII German pickaxes PRINT               | 1/35 |                |
| 648725 | Sopwith Camel 2F.1 Lewis gun PRINT       | 1/48 | Eduard         |
| 648824 | Fw 190F-8 cockpit PRINT                  | 1/48 | Eduard         |
| 648825 | F4F-3 engine mid PRINT                   | 1/48 | Eduard         |
| 648843 | Bf 109G-6 cockpit PRINT                  | 1/48 | Eduard         |
| 648859 | F-35A cockpit PRINT                      | 1/48 | Tamiya         |
| 648862 | Bf 110G radio equipment                  | 1/48 | Eduard         |
| 648863 | B-25J wheels                             | 1/48 | HKM            |
| 648864 | Mi-8MT wheels                            | 1/48 | Zvezda         |
| 648865 | Mi-17 wheels                             | 1/48 | AMK            |
| 648867 | Lewis 47-cartridges ammo magazines PRINT | 1/48 |                |
| 648869 | F-16 ladder PRINT                        | 1/48 |                |
| 648870 | B-25J engines PRINT                      | 1/48 | HKM            |
| 648871 | B-25J bombsight PRINT                    | 1/48 | HKM            |
| 672313 | Bf 109F propeller early PRINT            | 1/72 | Eduard         |
| 672314 | Bf 109F propeller late PRINT             | 1/72 | Eduard         |
| 672315 | Bf 109F gun barrels PRINT                | 1/72 | Eduard         |
| 672316 | Bf 109F wheels PRINT                     | 1/72 | Eduard         |

## LööKPLUS

|        |                                                |      |         |
|--------|------------------------------------------------|------|---------|
| 634035 | Hurricane Mk.IIb w/ rounded exhausts LööKplus  | 1/32 | Revell  |
| 634037 | Hurricane Mk.IIb w/ fishtail exhausts LööKplus | 1/32 | Revell  |
| 644214 | F-16A MLU LööKplus                             | 1/48 | Kinetic |

## BIG SIN

|           |                                    |      |         |
|-----------|------------------------------------|------|---------|
| SIN648105 | F4F-3 w/ early engine ADVANCED     | 1/48 | Eduard  |
| SIN648106 | F-16 armament w/ Maverick missiles | 1/48 | Kinetic |

## SPACE

|          |                     |      |                  |
|----------|---------------------|------|------------------|
| 3DL32016 | Spitfire Mk.I SPACE | 1/32 | Kotare           |
| 3DL32017 | AH-64E SPACE        | 1/35 | Takom            |
| 3DL48120 | PV-1 SPACE          | 1/48 | Academy          |
| 3DL48121 | Do 335A SPACE       | 1/48 | Tamiya           |
| 3DL48122 | Mi-8MT SPACE        | 1/48 | Trumpeter        |
| 3DL48123 | F-4E SPACE          | 1/48 | Meng             |
| 3DL72017 | MiG-29 9-12 SPACE   | 1/72 | Great Wall Hobby |
| 3DL72018 | Bf 109F SPACE       | 1/72 | Eduard           |

BIG-ED

eduard  
BRASSINeduard  
BRASSIN  
Print

LööK

LööK+

BIG  
SINeduard  
SPACE



# WEATHERING COLORS

# YAKUMO

These Yakumo Colors—Mr. Weathering Color and Mr. Weathering Paste-based weathering colors—were supervised by the world-famous modeler, Mr. Mig Jimenez. The mud and dirt colors are made with pigments that have been collected from all over the world.



## WWII WESTERN FRONT

CAT.NO.: WY01

WY01 is a weathering paint set for German vehicles in the WWII Western Front. Thin each color with the separately-sold **Mr. Weathering Colour Thinner** (WCT101/102); or **MIG015 thinner** (YAKUMO thinner).

From a modeler's perspective, Europe was the setting of many of the most interesting battles of the war, including Normandy, the Battle of the Bulge, Hungary, the Warsaw Uprising and the fall of Berlin. On these fronts the Germans used several standardized camouflage patterns, but each was always based on green and brown camouflage colours over a dark yellow base (C039 dark yellow, C041 red-brown and C070 dark green). Dust in summer and dry mud were the most common effects seen in German vehicles. In addition to the two products used to represent these effects, the perfect wash tone is also included, and another for streaked dirt stains. For the most complete finish, combine with SET D-BASICS.

[Product page](#)

MIG  
001

### DARK WASH

Apply the wash with a fine brush to details, in panel lines, and around hatches to enhance contrast and volume. Remove the excess with a clean brush moistened with YAKUMO thinner. Let it dry 24 hours.

MIG  
003

### DRY MUD

You can apply the mud with a thick brush to the underside of the vehicle, the tracks, and the suspension. You can also apply splashed earth effect with the mud product by the flicking a thick brush loaded with product using a toothpick. This will create mud splatter effects. Make a few tests on an old model or a piece of paper before trying it on the model. Let it dry 24 hours.

MIG  
002

### DARK STREAKING GRIME

Stroke well. Draw vertical lines on vertical or sloped surfaces with irregular shapes and different intensity, then blend with a flat brush and YAKUMO thinner to soften. Let it dry 24 hours.

MIG  
004

### EUROPE DUST

Pigment colour to simulate dust effects, particularly on the horizontal areas and around surface details. Apply the pigment dry with a brush and then moisten the surface with thinner. Once dry, it can be moistened again and touched up to achieve the desired effect.

MIG  
002







## WWII EASTERN FRONT

CAT.NO.: WY02

WY02 is a weathering paint set for winter camouflaged vehicles in WWII Eastern Front. Thin each color with the separately-sold **Mr. Weathering Colour Thinner** (WCT101/102); or **MIG015 thinner** (YAKUMO thinner).

The Germans camouflaged their vehicles in the harsh Russian winters with white paint to blend it with the snowy landscape. A white vehicle needs a very special treatment of aging and dirt to be realistic and credible. This special set for German winter vehicles includes the necessary products to achieve a realistic appearance in a winter environment such as the battles of Moscow, Stalingrad, or the siege of Leningrad. This set is specially designed for white camouflage applied on German panzer grey colour (Panzer Grey - C040 German Grey, C513 „Dunkelgrau“, C514 „Grau“ etc). For the most complete finish, combine with SET D-BASICS.

[Product page](#)

MIG  
005

**WINTER WASH**  
see MIG 001 for description

MIG  
006

**WINTER STREAKING GRIME**  
see MIG 002 for description

MIG  
007

**MIG-007 - FRESH DARK MUD**  
see MIG 003 for description

MIG  
008

**MIG-008 - DRY EARTH**  
see MIG 004 for description



## WWII AFRIKA KORPS

CAT.NO.: WY03

WY03 is a weathering paint set for model vehicles in the WWII Afrika Korps. It can add realistic sand stains from the harsh weather conditions of Africa to your scale model. Thin each color with the separately-sold **Mr. Weathering Colour Thinner** (WCT101/102); or **MIG015 thinner** (YAKUMO thinner).

The landscapes of Tunisia or Libya were very harsh and hostile environments for the vehicles of the German Afrika Korps (DAK). The scorching sun and heat faded the colours quickly while the dust was ubiquitous. The Germans over painted their grey vehicles with various shades of sand colour (i.e. C039 Dark Yellow) to make them less visible on the open desert plains. The product included in this set allow you to apply washes, dirt effect, and large accumulations of dust to give your model realistic look. For more complete finish, combine with SET D-BASICS.

[Product page](#)

MIG  
009

**SAND FILTER**  
Apply the filter over the entire surface of model uniformly for a transparent and subtle effect, without letting the product accumulate in recesses and panel lines. Allow the filter to dry for 24 hours.

MIG  
010

**DESERT WASH**  
Apply the wash with a fine brush to details, in panel lines, and around hatches to enhance contrast and volume. Remove the excess with a clean brush moistened with YAKUMO thinner. Let it dry 24 hours.

MIG  
011

**GRAY STREAKING GRIME**  
see MIG 003 for description

MIG  
012

**MIG-008 - DRY EARTH**  
see MIG 004 for description





## BASICS

CAT.NO.: WY04

WY04 is a weathering paint set that can be used on various military models including tanks. This set of paints can replicate basic oil stains, chipped paint, and rust. Thin each color with the separately-sold **Mr. Weathering Colour Thinner** (WCT101/102); or **MIG015 thinner** (YAKUMO thinner).

Most German military vehicles showed certain universal weathering effects, no matter the setting or time of the year. Tanks or half-tracks usually showed chipped paint, rust effects, or large areas of fuel stains soaked into caked dust or dirt over top. These are the weathering effects that bring more life and realism to the model, and that is the reason why you must pay special attention when adding them. This universal set will allow you to create extremely realistic effects on your models, no matter the location or time of the year in which they are set. The colours and effects are accurate for the cold Russian winter, the Normandy campaign or the barren landscapes of the North Africa. Always use this set in combination with one of the YAKUMO sets for military vehicles in a specific setting.

[Product page](#)

### MIG 013 FUEL & OIL

Apply this product to the sides of model in the shape of vertical lines, or add small drops over a surface treated with MIG014 pigment. This effect can be diluted with YAKUMO thinner to create a softer and more natural effect. Use this effect sparingly and apply the effect in scale. Let it dry 12 hours.

### MIG 014 EARTH & GRIME

A pigment tone to simulate accumulated dirt, or to create a base onto which you can apply fuel stains. Apply the pigment dry with a brush to the designed areas. It can also be used to emphasize shadows or dirt effect on nooks and crannies.

### MIG 015 CHIPPING

The perfect colour to represent chipped paint effects on your models, as long as the surface you are depicting was made out of iron or steel in the real vehicle. Use a brush with a fine tip to paint the chips on the zones most exposed to wear and tear. You can also apply the chipping with a piece of sponge or packing foam. Let it dry 10 minutes. Can be cleaned with water.

### MIG 016 MIG-008 - DRY EARTH

Eventually all vehicles rust in specific areas due to rain, snow and dew. Apply the product in small quantities around small details such as screw heads, brackets or other fixtures, as well as on vertical or sloped surfaces in the form of faded lines. Use the effect sparingly and apply the effect in scale.







## Modelářský klub Ostrava 446 a předsednictvo IPMS.CZE

zve všechny příznivce  
plastikového modelářství  
na Mistrovství České republiky mládeže a  
doprovodné akce

### 17. června 2023

V Kulturním domě Rychvald



Mistrovství ČR mládeže (letadla 1/72,1/48,1/32), bojová technika (1/72,1/48,1/35), lodě a ponorky, dioramy a civilní technika.

Doprovodná porovnávací soutěž seniorů, letadla (1/72,1/48,1/32), bojová technika (1/72,1/48,1/35) a civilní technika

Bližší informace a propozice na [www.aircraft.cz](http://www.aircraft.cz),

osobní kontakt Petr Potyš, mob. 730 430 239

Mistrovská soutěž mládeže je organizována pod záštitou SMČR



**Svaz modelářů České republiky**

*Svaz stavitelů plastických modelů ČR*

**IPMS.CZE**

*International Plastic Modeler's Society*



# PROPOZICE NA STRÁNKÁCH SMČR



# P-51D-10 Mustang

## 1/48



#84184

KAMO A

built by **Jan Baranec**

Product page

644030 P-51D-10 LööK (Brassin)



648522 P-51D cockpit (Brassin)



648503 P-51D wheels oval tread (Brassin)



648486 P-51D exhaust stacks w/ fairing (Brassin)

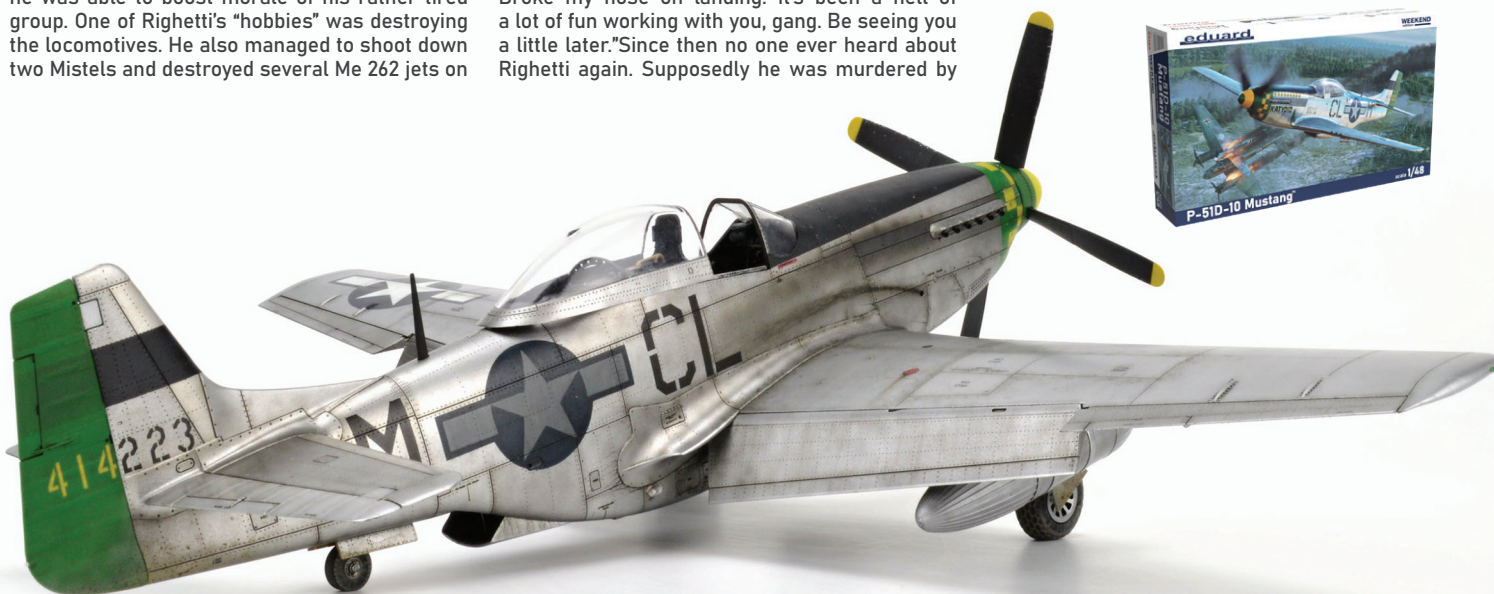


**s/n 44-14223, Lt. Col. Elwyn G. Righetti, CO of 55th FG, 8th AF, Wormingford, United Kingdom, December 1944–March 1945**

Elwyn Guido Righetti, also known as "Eager El", was not only the 55th FG top fighter ace but also the most successful strafing ace in the whole ETO. Righetti joined the 338th FS, 55th FG in October 1944. At the age of 29, he was already a matured pilot, however he lacked the combat experience. Despite his age he was eager and aggressive, so he was able to boost morale of his rather tired group. One of Righetti's "hobbies" was destroying the locomotives. He also managed to shoot down two Mistels and destroyed several Me 262 jets on

the ground. Unfortunately, Righetti's outstanding achievements were cut short right before the end of war. On April 17, 1945, exactly on his 30th birthday, Righetti was shot down by flak while raiding the airfield near Dresden. He successfully performed the emergency landing and advised his friends over the radio "Tell the family I'm okay. Broke my nose on landing. It's been a hell of a lot of fun working with you, gang. Be seeing you a little later." Since then no one ever heard about Righetti again. Supposedly he was murdered by

the enraged German civilians. During his short combat career, he scored 7.5 kills and destroyed 35 enemy aircraft on the ground. He flew two personal Mustangs (44-14223 and 44-47222), both of them were decorated with the inscription KATYDID and grasshopper artwork on the port side of the fuselage.



## Accessories used:

- 644030 P-51D-10 LööK (Brassin)
- 648486 P-51D exhaust stacks w/ fairing (Brassin)
- 648503 P-51D wheels oval tread (Brassin)
- 648522 P-51D cockpit (Brassin)
- 648572 P-51D 108gal drop tanks (Brassin)
- 648742 P-51D wheel bay PRINT (Brassin)



648742 P-51D wheel bay PRINT (Brassin)





## DUAL COMBO

SAMURAI



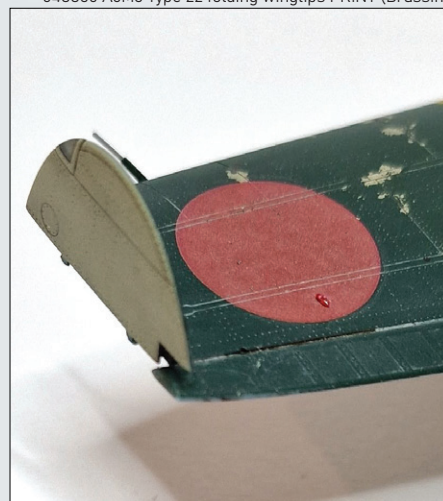
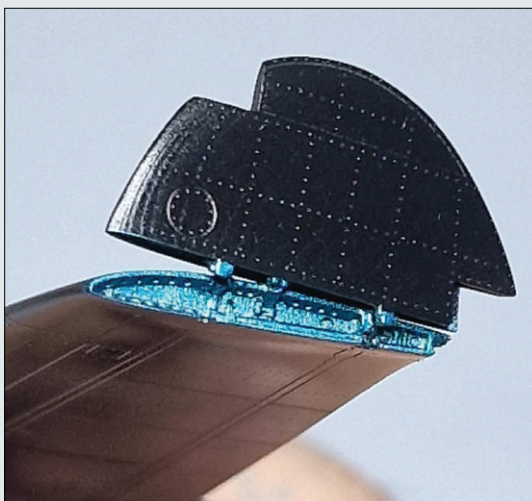
1/48

#11168

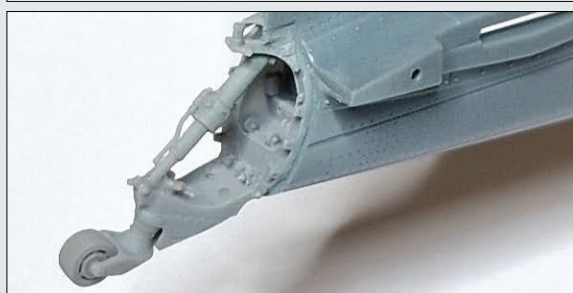
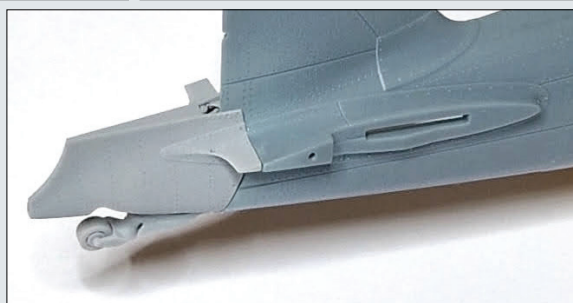
KAMO I

built by **Paolo Portuesi**

648806 A6M3 Type 22 folding wingtips PRINT (Brassin)



648787 A6M3 tailwheel PRINT (Brassin)





## Kōkūtai 251, Rabaul airbase, New Britain, May 1943

For most naval fighter units that applied green paint in field conditions, the method of painting was similar within the unit. The exception is Kōkūtai 251, which used very varied patterns of green paint. The unit designation code was U1, but this was repainted on the machines at the time of deployment to Rabaul. U1-109 was photographed

on May 23, 1943 flying in a formation of six Zeros during a patrol over New Britain. The photographs were taken by war correspondent Hajime Yoshida. The U1-109 flew as the wingman of the first Shōtai leader, who was the controls of U1-105, which is incorrectly attributed to Nishizawa. Kōkūtai 251 lost a total of 34 pilots during its deployment to

the Rabaul and Solomon Islands area from May to the end of August 1943. In September 1943, its status was therefore changed to a night fighter with twin-engine Irving aircraft, and its remaining Zer pilots were assigned to other units in Rabaul.

648807 A6M3 Type 22 landing flaps PRINT (Brassin)



## Accessories used:

- 648787 A6M3 tailwheel PRINT (Brassin)
- 648799 A6M3 wheels (Brassin)
- 648806 A6M3 Type 22 folding wingtips PRINT (Brassin)
- 648807 A6M3 Type 22 landing flaps PRINT (Brassin)



648799 A6M3 wheels (Brassin)

[Product page](#)



# Sopwith Camel Comic

## 1/48

#82175  
KAMO F  
built by Frank Barkhofen

### Accessories used:

- 648659 Sopwith Camel seat PRINT (Brassin)
- 648674 Sopwith Camel Rotherham air pumps PRINT (Brassin)
- 648726 Sopwith Camel Comic Lewis guns PRINT (Brassin)





## B4614, No. 44 (HD) Squadron, B flight, Hainault Farm, United Kingdom, February 1918

This Comic was manufactured as a standard Camel F.1 by Portholme Aerodrome and subsequently converted. It served with No. 44 (HD) Squadron from February 16, 1918, the very next day it took part in a night Anti-Gotha patrol with Lt. R. G. H. Adams at controls. Another

operational flight with this aircraft is documented from May 19, 1918, when the aircraft was flown by Lt. W. E. Nicholson. Although this Comic was used for night operational flights, it retained, at least according to available photographs, the standard cockades on the fuselage as well as the

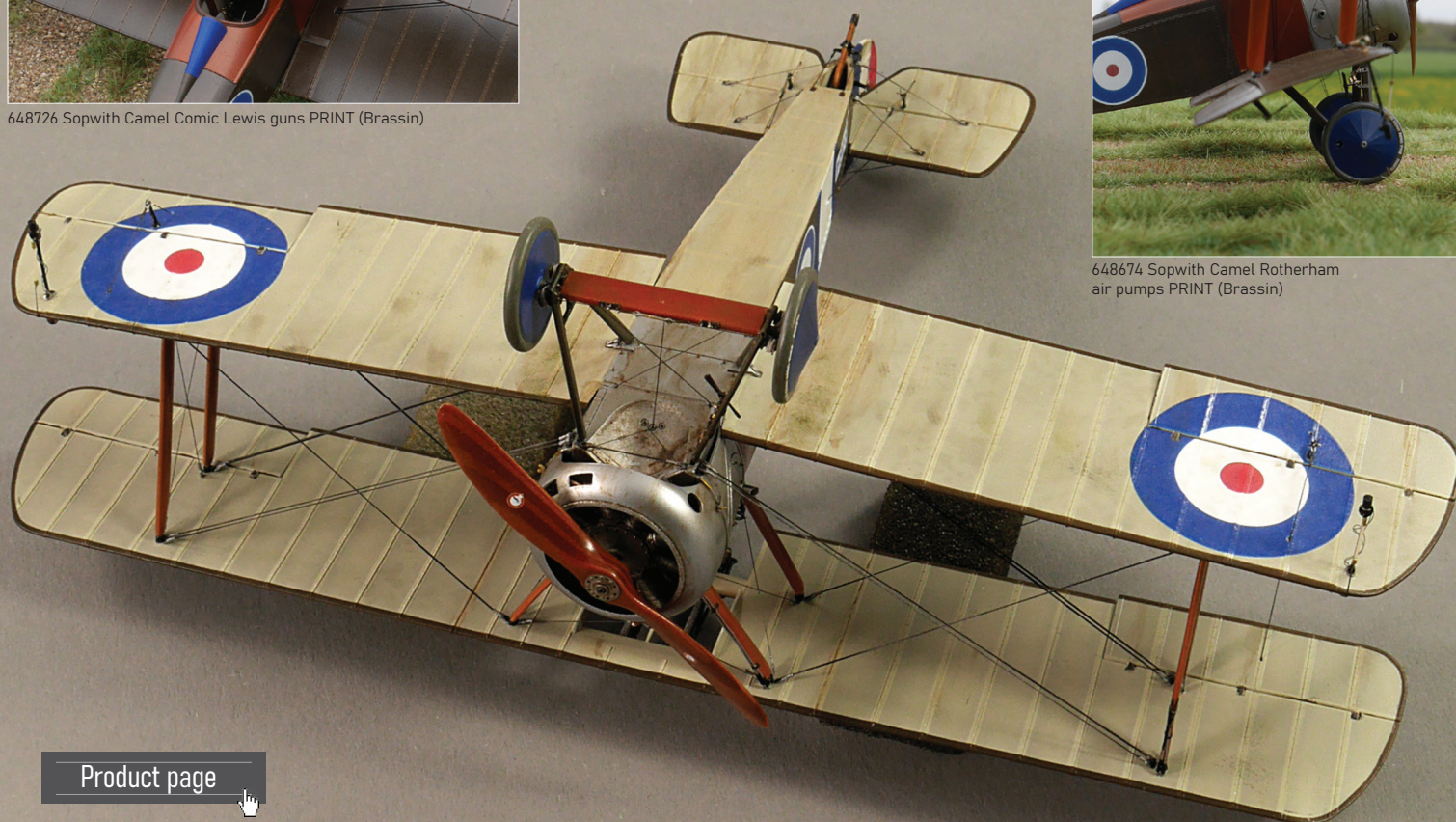
serial number, which appears in the photograph to be blue rather than the standard black. The appearance of the wings cockades remains unknown, they might be standard, as the fuselage ones, or toned down somehow.



648726 Sopwith Camel Comic Lewis guns PRINT (Brassin)



648674 Sopwith Camel Rotherham air pumps PRINT (Brassin)



[Product page](#)



# MI-24V RAISED RIVETS AND SURFACE DETAILS

1/48 ZVEZDA

#ER48001

built by **Ugur Kenel**



[Product page](#)

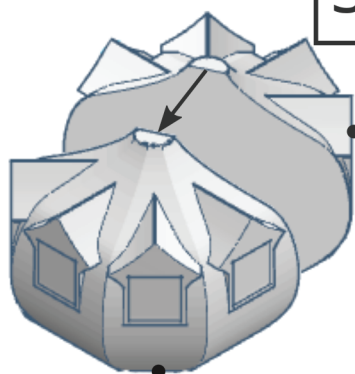


RIVET THE EDDIE WAY!



# LITOMĚŘICKÝ KALICH 2023

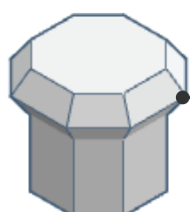
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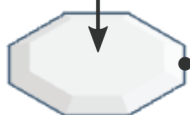
soutěž

výstava plastikových modelů

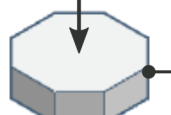
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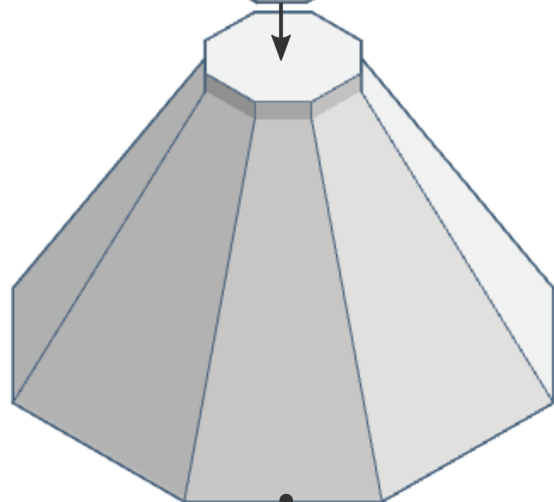
3. 6.  
2023



8:00



15:00



zámek Ploskovice

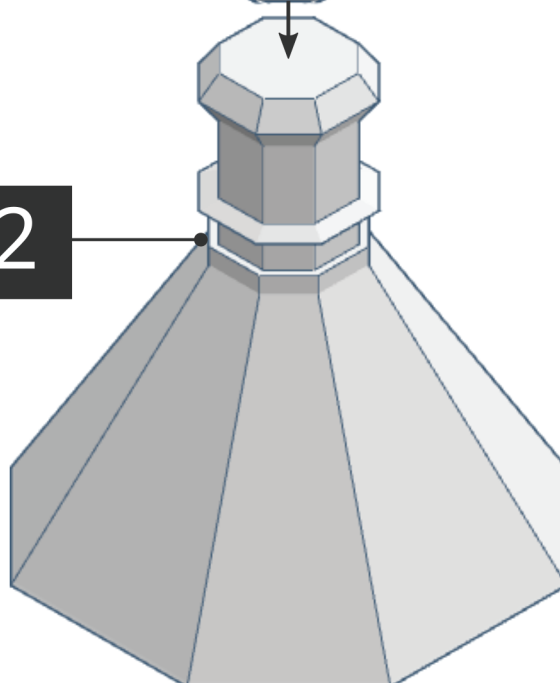
3

polní kuchyně

1



2



[www.klpm.cz](http://www.klpm.cz)



**BIG ED (July)**

|          |                             |
|----------|-----------------------------|
| BIG2405  | Spitfire Mk.IXc 1/24 Airfix |
| BIG49370 | Mi-8MT 1/48 Zvezda          |
| BIG49371 | A6M2b 1/48 Academy          |
| BIG49372 | B-24D PART I 1/48 Revell    |
| BIG72174 | C-130J PART II 1/72 Zvezda  |
| BIG72175 | F-14B 1/72 Academy          |

**BRASSIN (July)**

|        |                                                 |
|--------|-------------------------------------------------|
| 634038 | Spitfire Mk.Ia LööK 1/32 Kotare                 |
| 644217 | Do 335A LööK 1/48 Tamiya                        |
| 632194 | F-16 exhaust nozzle P&W F100 PRINT 1/32 Tamiya  |
| 632195 | Spitfire Mk.Ia wheels 1/32 Kotare               |
| 632196 | Spitfire Mk.Ia exhaust stacks PRINT 1/32 Kotare |
| 648866 | Anson Mk.I engines PRINT 1/48 Airfix            |
| 648868 | Mi-8MT wheels 1/48 Trumpeter                    |
| 648872 | P-51D/K radiator PRINT 1/48 Eduard              |
| 648876 | Bf 109F cockpit PRINT 1/48 Eduard               |
| 648877 | F-35B ejection seat PRINT 1/48 Italeri          |
| 648878 | Do 335A exhaust stacks PRINT 1/48 Tamiya        |
| 648879 | Do 335A wheels 1/48 Tamiya                      |
| 672318 | Bf 109F radio compartment PRINT 1/72 Eduard     |
| 672321 | Bf 109F/G external fuel tanks 1/72 Eduard       |
| 672322 | Bf 109F wheel bays rounded PRINT 1/72 Eduard    |
| 672323 | Bf 109F/G wheel bays angular PRINT 1/72 Eduard  |
| 672324 | Bf 109 SC250 bomb 1/72 Eduard                   |
| 672325 | Bf 109F/G exhaust stacks PRINT 1/72 Eduard      |

**LööKPlus (July)**

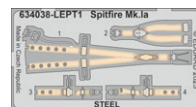
|        |                                      |
|--------|--------------------------------------|
| 634036 | Spitfire Mk.IXc LööKplus 1/24 Airfix |
| 644218 | Mi-8MT LööKplus 1/48 Zvezda          |
| 644219 | PV-1 LööKplus 1/48 Academy/Revell    |

**BIGSIN (July)**

|           |                         |
|-----------|-------------------------|
| SIN648107 | A6M2-N Rufe 1/48 Eduard |
| SIN67220  | Bf 110E 1/72 Eduard     |

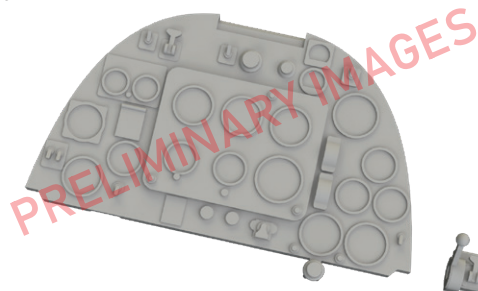
**634038****Spitfire Mk.Ia LööK****1/32 Kotare***LööK*

LööK set - Brassin pre-painted dashboard and STEEL seatbelts for Spitfire Mk.Ia in 1/32 scale. Easy to assemble, replaces plastic parts. Recommended kit: Kotare

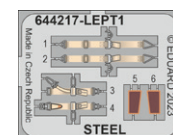


Set contains:

- resin: 1 part
- 3D print: 1 part
- decals: no
- photo-etched details: yes, pre-painted
- painting mask: no

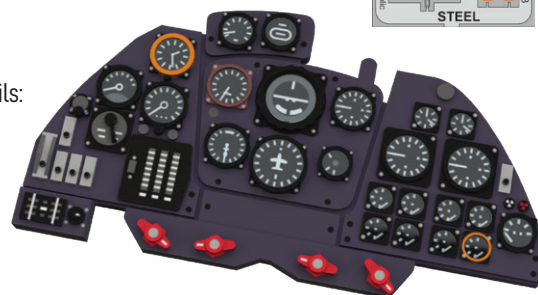
**644217****Do 335A LööK****1/48 Tamiya***LööK*

LööK set - Brassin pre-painted dashboard and STEEL seatbelts for Do 335A in 1/48 scale. Easy to assemble, replaces plastic parts. Recommended kit: Tamiya



Set contains:

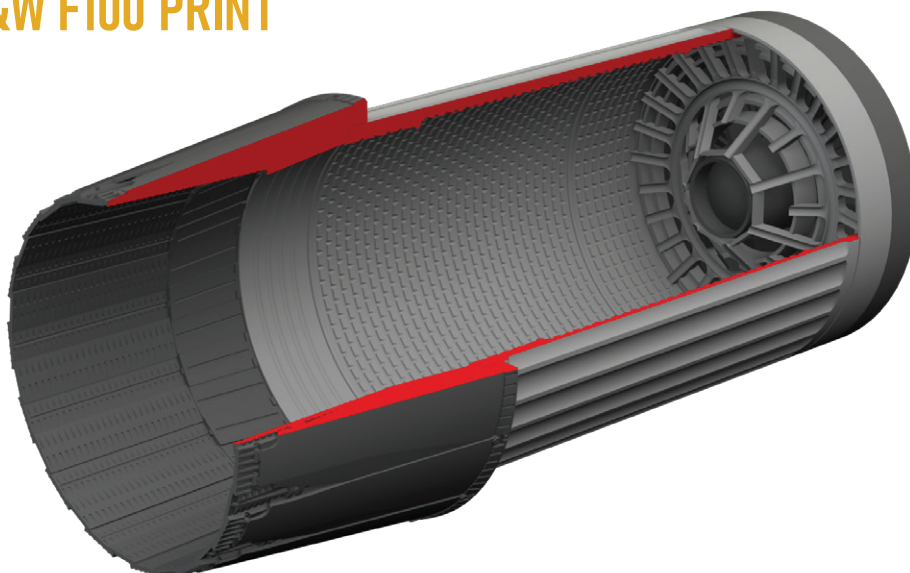
- resin: 1 part
- decals: no
- photo-etched details: yes, pre-painted
- painting mask: no

**632194****F-16 exhaust nozzle P&W F100 PRINT****1/32 Tamiya**

Brassin set - the exhaust nozzle for P&W F100 engine powered F-16 in 1/32 scale. Made by direct 3D printing. Recommended kit: Tamiya

Set contains:

- 3D print: 4 parts
- decals: no
- photo-etched details: no
- painting mask: no





632195

## Spitfire Mk.Ia wheels

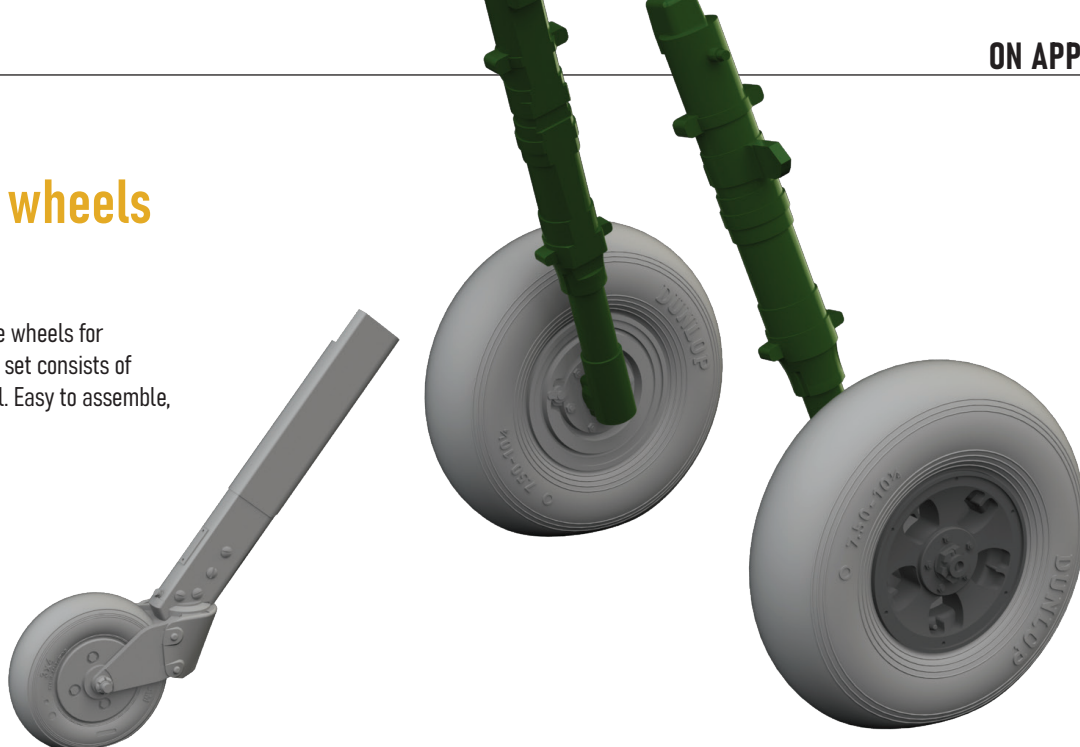
1/32 Kotare

Brassin set - the undercarriage wheels for Spitfire Mk.Ia in 1/32 scale. The set consists of the main wheels and tail wheel. Easy to assemble, replaces plastic parts.

Recommended kit: Kotare

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: yes



632196

## Spitfire Mk.Ia exhaust stacks PRINT

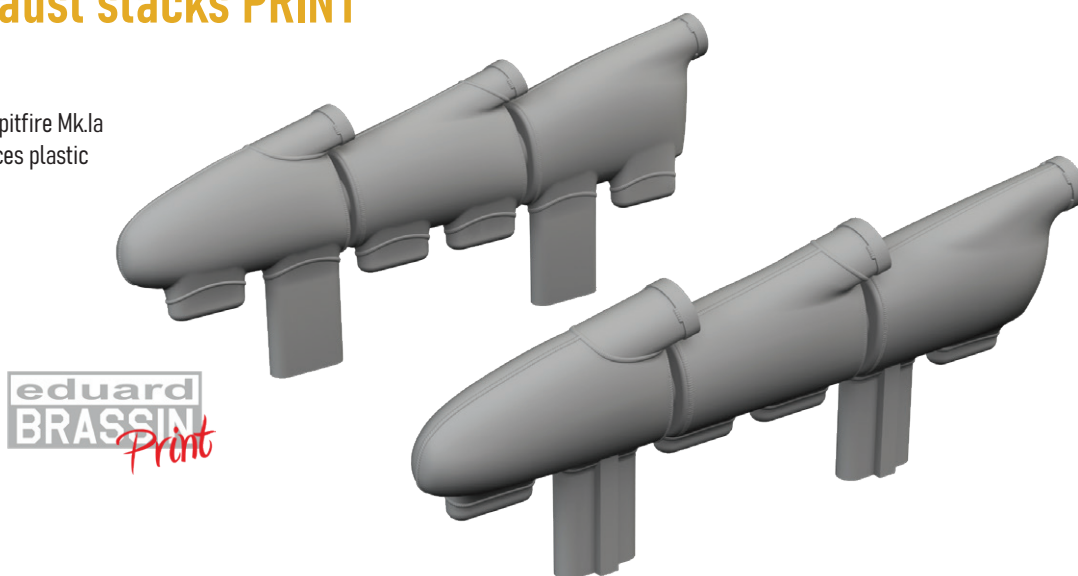
1/32 Kotare

Brassin set - the exhaust stacks for Spitfire Mk.Ia in 1/32 scale. Easy to assemble, replaces plastic parts. Made by direct 3D printing.

Recommended kit: Kotare

Set contains:

- 3D print: 2 parts
- decals: no
- photo-etched details: no
- painting mask: no



6348866

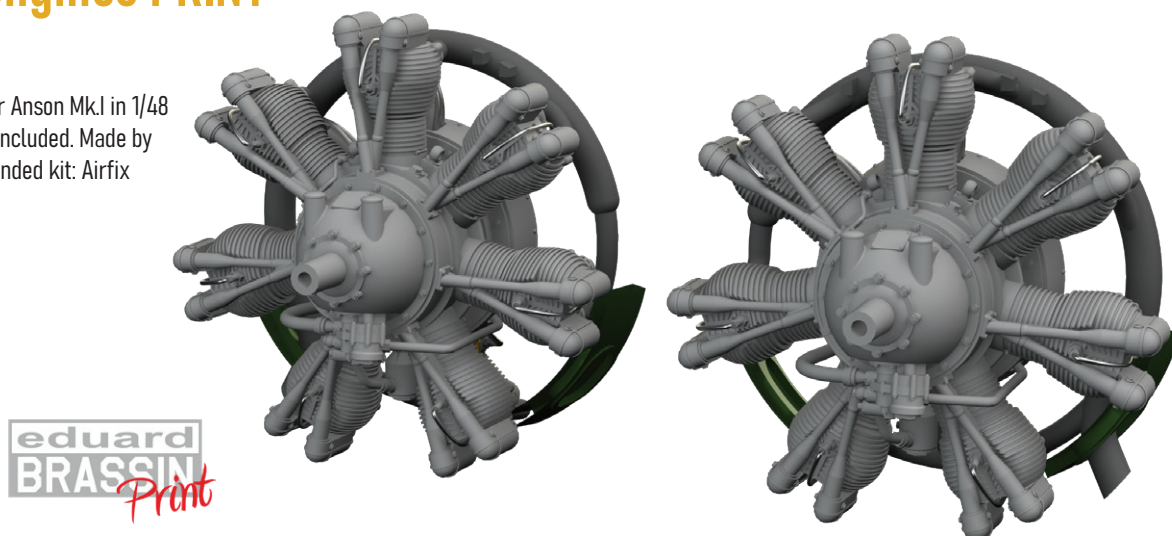
## Anson Mk.I engines PRINT

1/48 Airfix

Brassin set - two engines for Anson Mk.I in 1/48 scale. The cowlings are not included. Made by direct 3D printing. Recommended kit: Airfix

Set contains:

- 3D print: 6 parts
- decals: no
- photo-etched details: yes
- painting mask: no





648868

**Mi-8MT wheels****1/48 Trumpeter**

Brassin set - the undercarriage wheels for Mi-8MT in 1/48 scale. The set consists of the main wheels and nose wheels. Easy to assemble, replaces plastic parts. Recommended kit: Trumpeter

Set contains:

- resin: 4 parts
- decals: no
- photo-etched details: no
- painting mask: yes



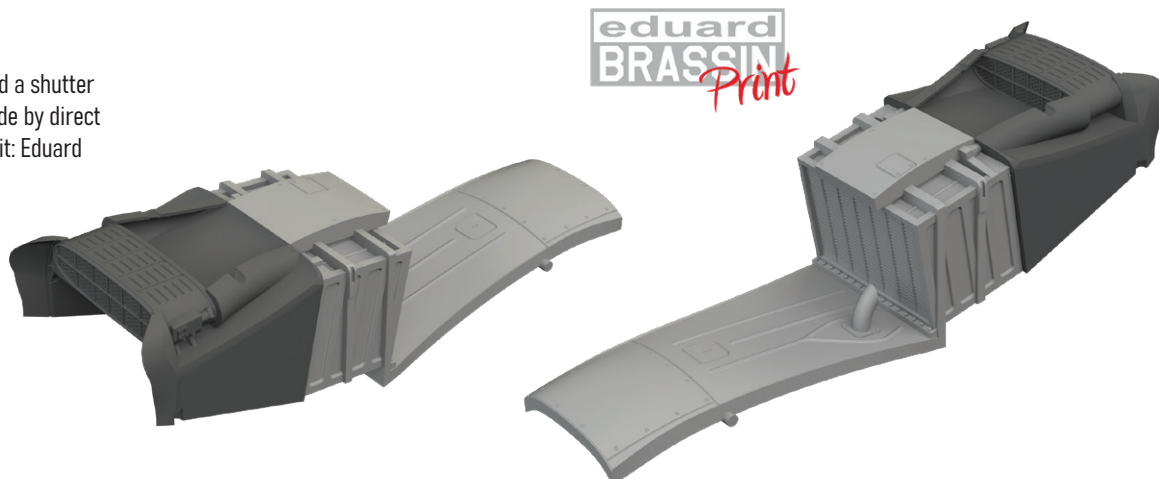
648872

**P-51D/K radiator PRINT****1/48 Eduard**

Brassin set - the radiator and a shutter for P-51D/K in 1/48 scale. Made by direct 3D printing. Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- decals: no
- photo-etched details: no
- painting mask: no



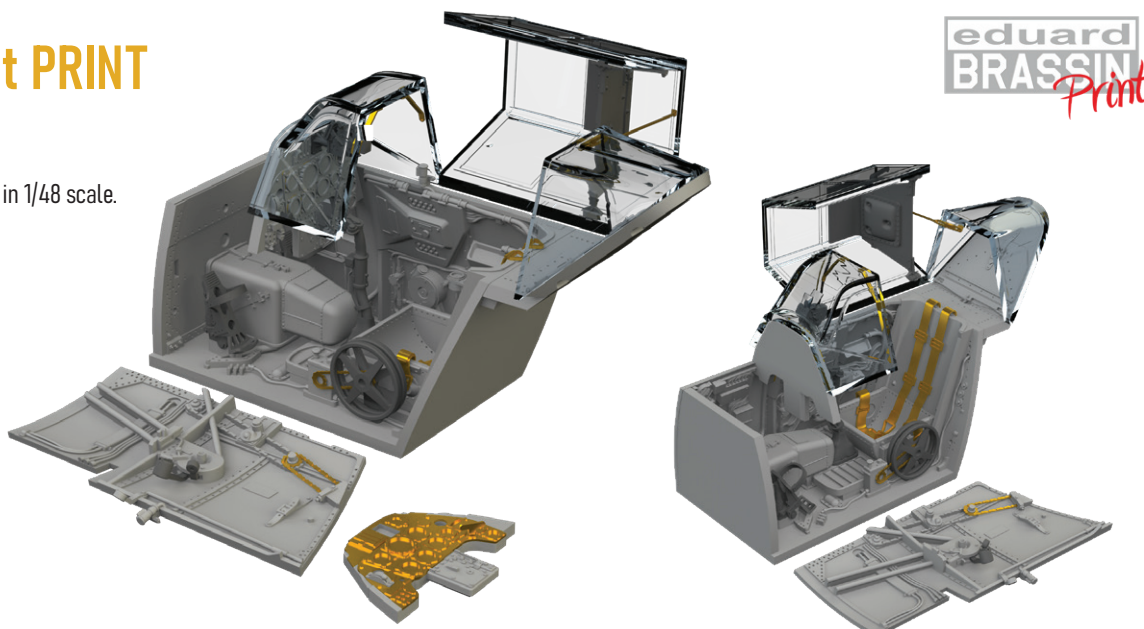
648876

**Bf 109F cockpit PRINT****1/48 Eduard**

Brassin set - cockpit for Bf 109F in 1/48 scale. Made by direct 3D printing. Recommended kit: Eduard

Set contains:

- 3D print: 16 parts
- resin: 1 part
- decals: yes
- photo-etched details: yes, pre-painted
- painting mask: no
- SPACE 3D decals: no





648877

**F-35B ejection seat PRINT**

1/48 Italeri

Brassin set - ejection seat for F-35B in 1/48 scale.  
Made by direct 3D printing. Easy to assemble,  
replaces plastic parts. Recommended kit: Italeri

Set contains:

- 3D print: 9 parts
- decals: yes
- photo-etched details: yes, pre-painted
- painting mask: no



648878

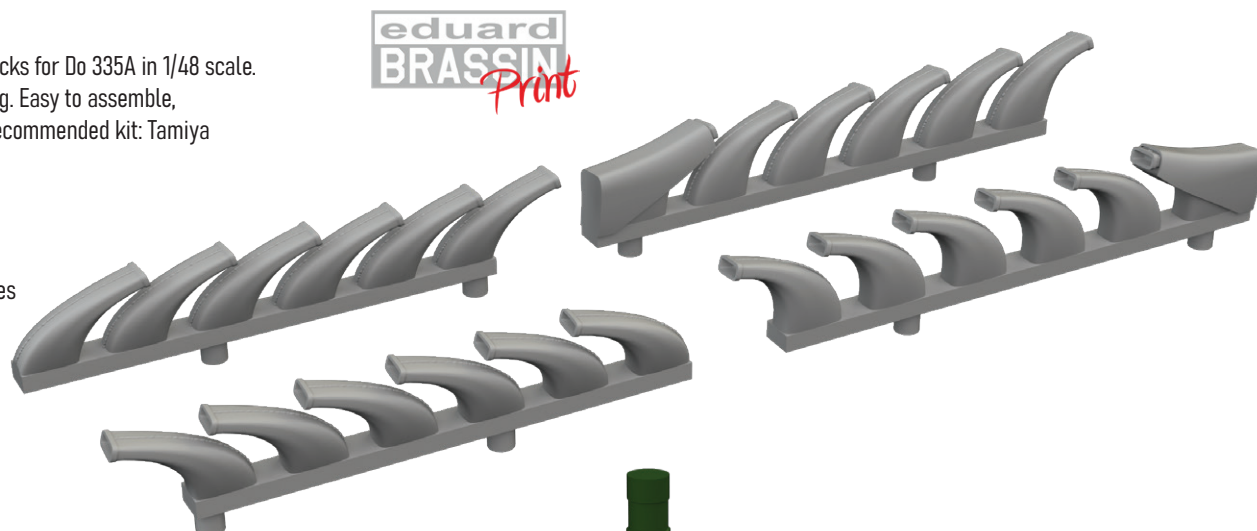
**Do 335A exhaust stacks PRINT**

1/48 Tamiya

Brassin set - exhaust stacks for Do 335A in 1/48 scale.  
Made by direct 3D printing. Easy to assemble,  
replaces plastic parts. Recommended kit: Tamiya

Set contains:

- 3D print: 4 parts
- decals: no
- photo-etched details: yes
- painting mask: no



648879

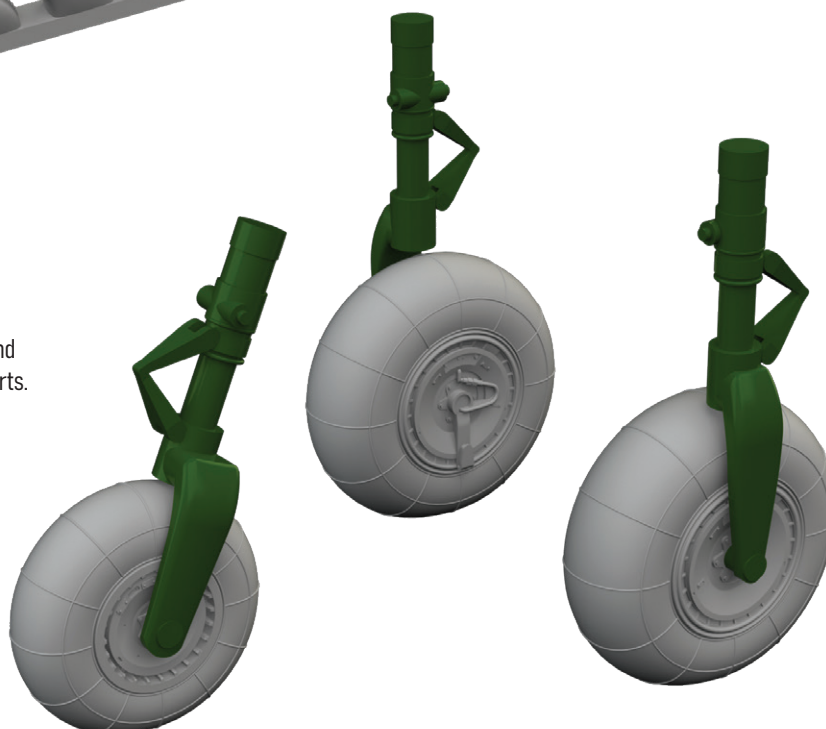
**Do 335A wheels**

1/48 Tamiya

Brassin set - the undercarriage wheels for Do 335A  
in 1/48 scale. The set consists of the main wheels and  
a nose wheel. Easy to assemble, replaces plastic parts.  
Recommended kit: Tamiya

Set contains:

- resin: 3 parts
- decals: no
- photo-etched details: no
- painting mask: yes





672318

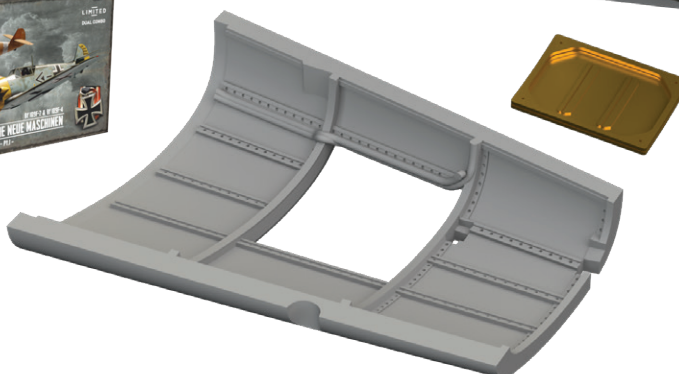
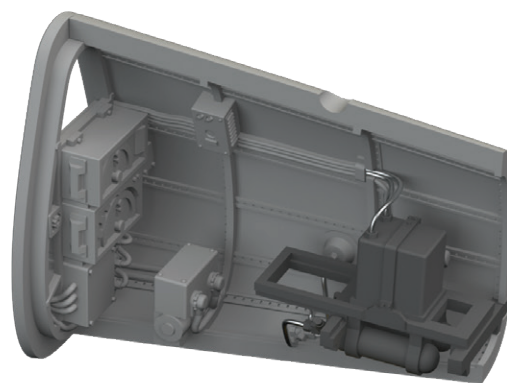
**Bf 109F radio compartment PRINT**

1/72 Eduard

Brassin set - radio compartment for Bf 109F  
in 1/72 scale. Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 4 parts
- decals: no
- photo-etched details: yes
- painting mask: no



eduard  
BRASSIN  
*Print*

672321

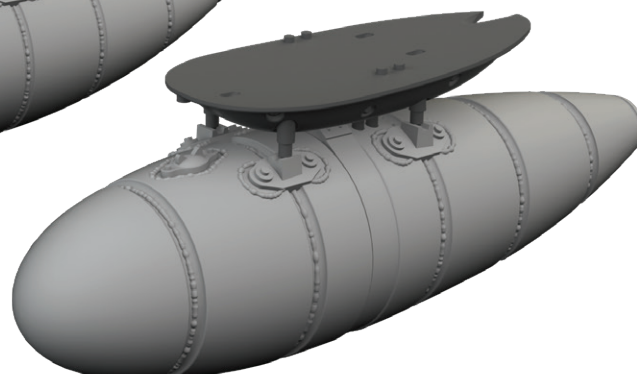
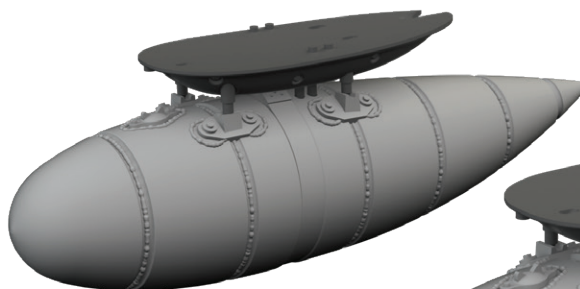
**Bf 109F/G external fuel tanks**

1/72 Eduard

Brassin set - external fuel tanks for Bf 109F  
and Bf 109G in 1/72 scale. The set consists  
of two different tanks. Made by direct 3D printing.  
Easy to assemble, replaces plastic parts.  
Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- resin: 2 parts
- decals: yes
- photo-etched details: no
- painting mask: no



672322

**Bf 109F wheel bays rounded PRINT**

1/72 Eduard

Brassin set - rounded wheel bays for Bf 109F  
in 1/72 scale. Made by direct 3D printing.  
Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- decals: no
- photo-etched details: no
- painting mask: no



eduard  
BRASSIN  
*Print*



672323

## Bf 109F/G wheels bays angular PRINT

1/72 Eduard

Brassin set - angular wheel bays for Bf 109F in 1/72 scale. Made by direct 3D printing. Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- decals: no
- photo-etched details: no
- painting mask: no

eduard  
BRASSIN  
*Print*



672324

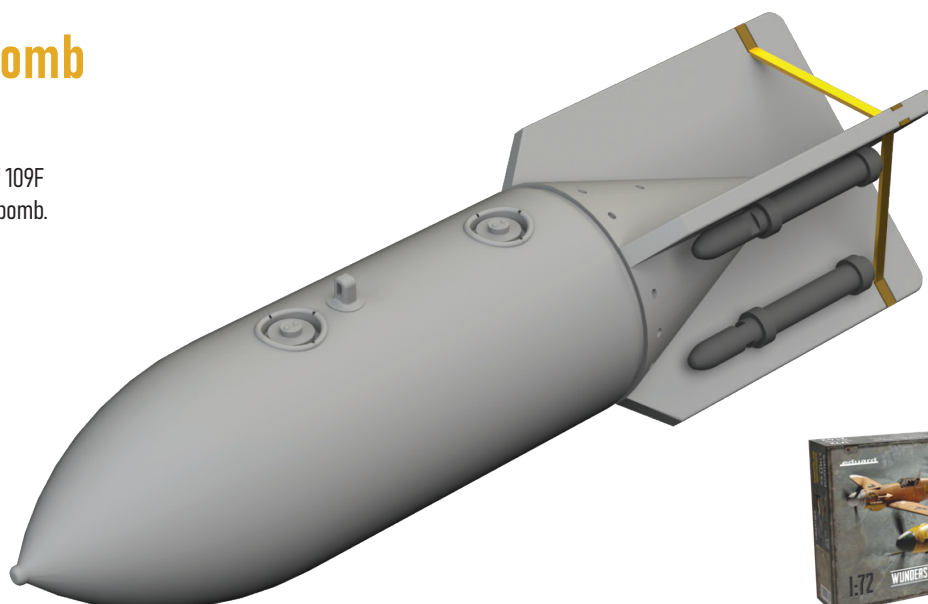
## Bf 109 SC250 bomb

1/72 Eduard

Brassin set - SC 250 bombs for Bf 109F in 1/72 scale. The set consist of 1 bomb. Made by direct 3D printing. Recommended kit: Eduard

Set contains:

- resin: 5 parts
- decals: yes
- photo-etched details: yes
- painting mask: no



672325

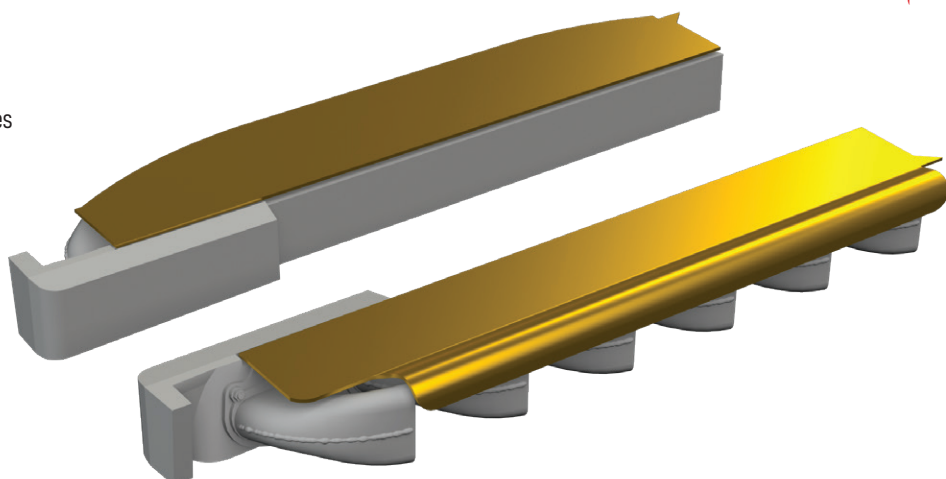
## Bf 109F/G exhaust stacks PRINT

1/72 Eduard

Brassin set - exhaust stacks for Bf 109F in 1/72 scale. Made by direct 3D printing. Easy to assemble, replaces plastic parts. Recommended kit: Eduard

Set contains:

- 3D print: 2 parts
- decals: no
- photo-etched details: yes
- painting mask: no



eduard  
BRASSIN  
*Print*



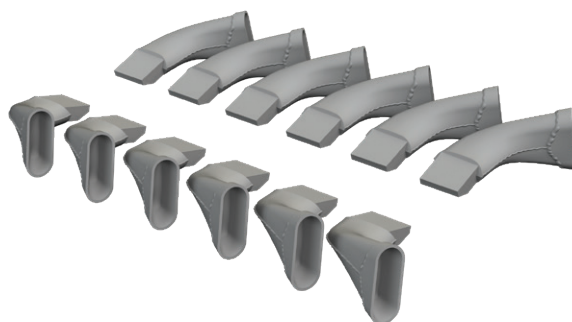
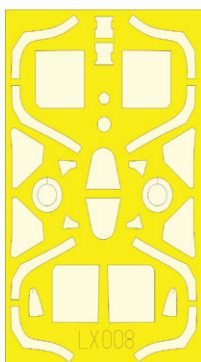
634036

**Spitfire Mk.IXc LööKplus****1/24 Airfix**

Collection of 4 sets for Spitfire Mk.IXc in 1/24 scale.

Recommended kit: Airfix

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels
- exhaust stacks

**LööKt**

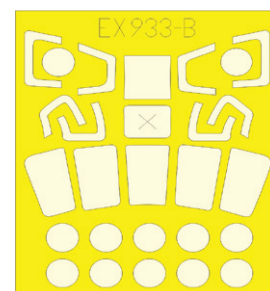
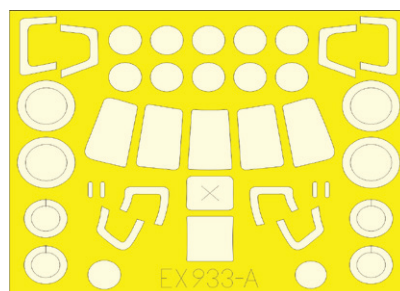
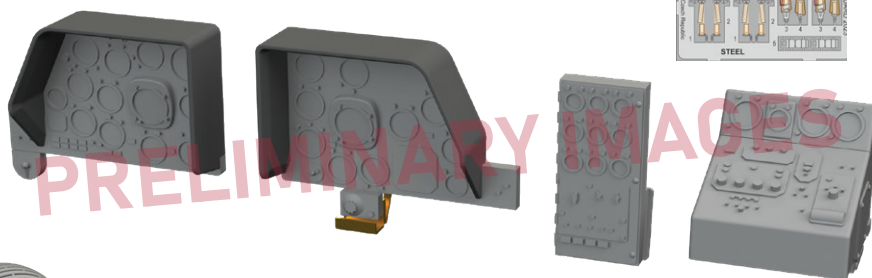
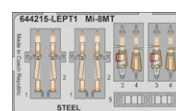
644218

**Mi-8MT LööKplus****1/48 Zvezda**

Collection of 3 sets for Mi-8MT in 1/48 scale.

Recommended kit: Zvezda

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels

**LööKt**



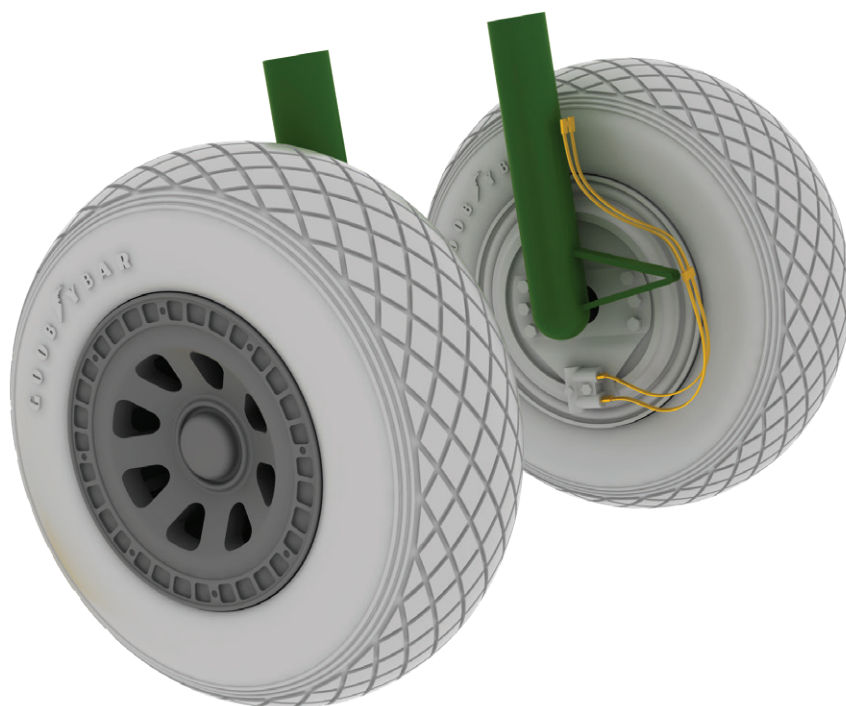
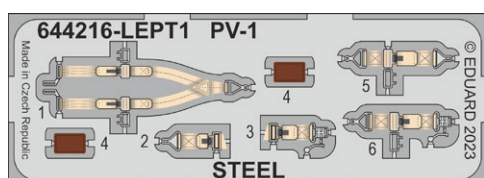
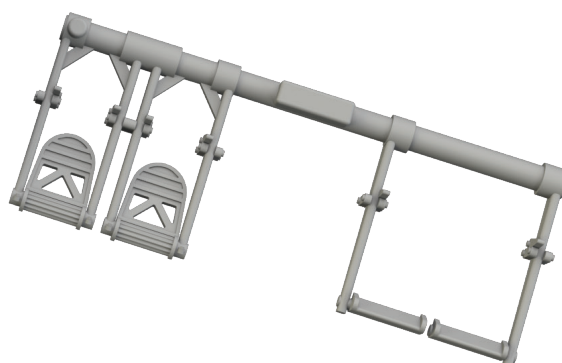
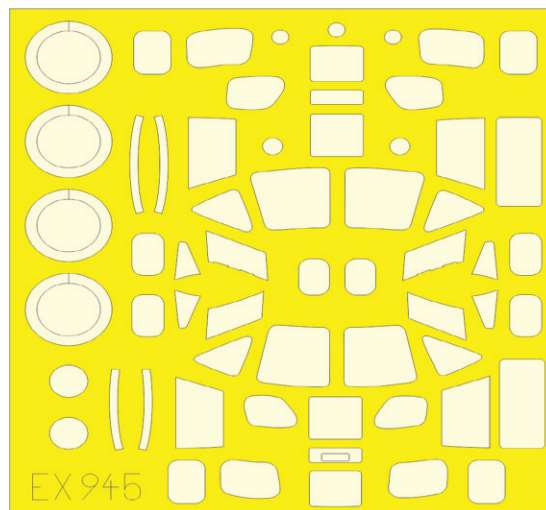
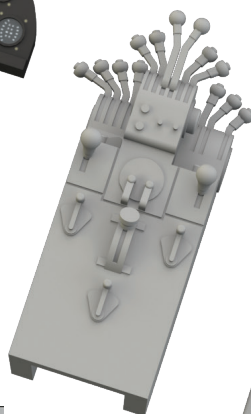
644219

**PV-1 LööKplus****1/48 Academy/Revell**

Collection of 3 sets for PV-1 in 1/48 scale.

Recommended kit: Academy / Revell

- LööK set (pre-painted Brassin dashboards & Steelbelts)
- TFace painting mask
- undercarriage wheels

*LööKt*



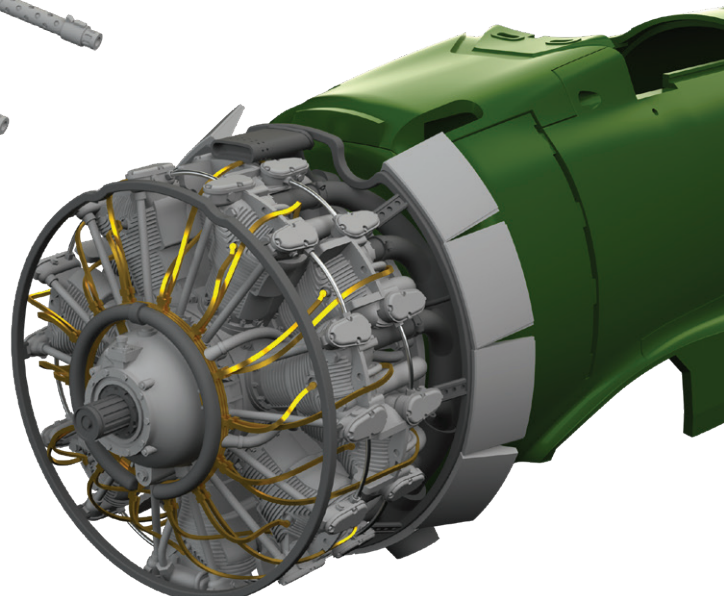
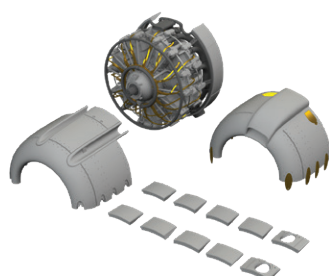
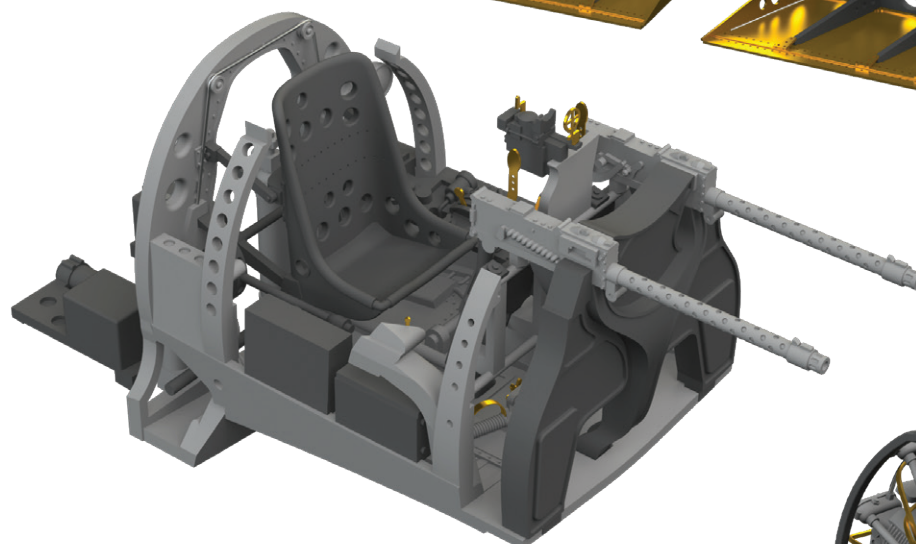
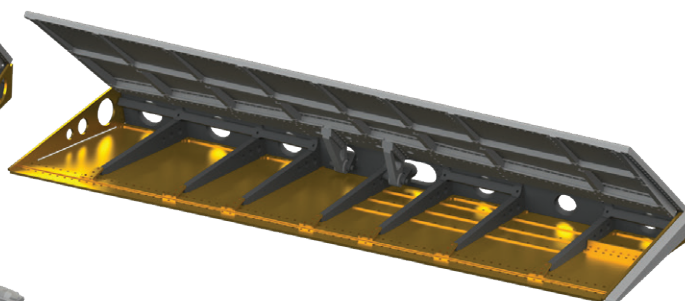
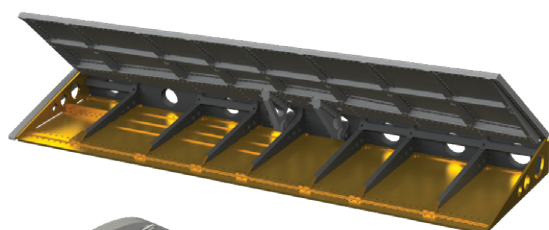
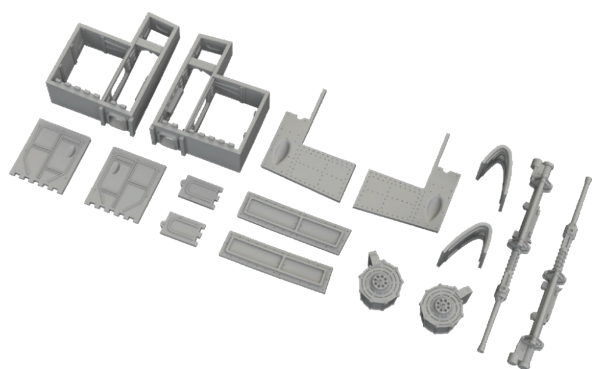
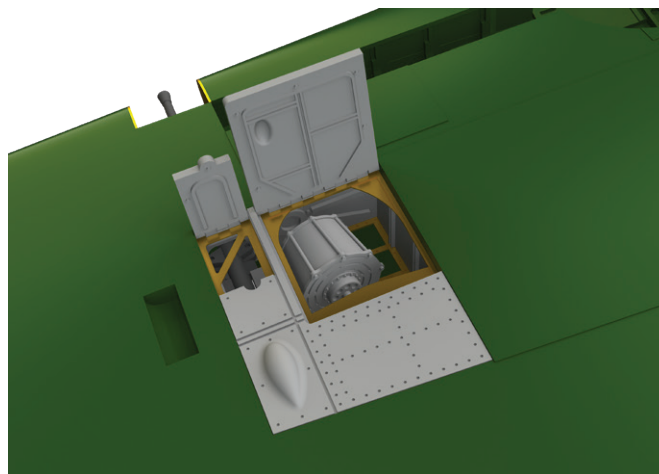
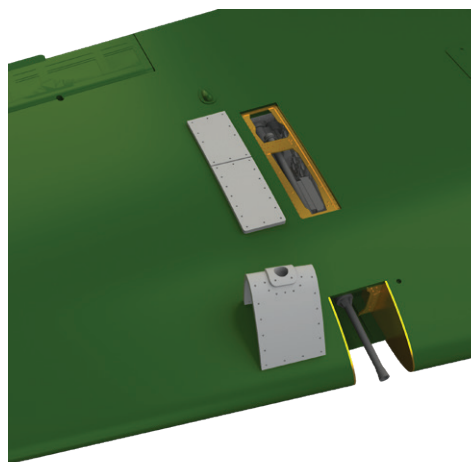
SIN648107

**A6M2-N Rufe****1/48 Eduard**

Collection of 4 sets for A6M2-N in 1/48 scale.  
Recommended kit: Eduard

- engine
- gun bays
- landing flaps
- cockpit

All sets included in this BIG SIN are available separately,  
but with every BIG SIN set you save up to 30 %.



SIN67220

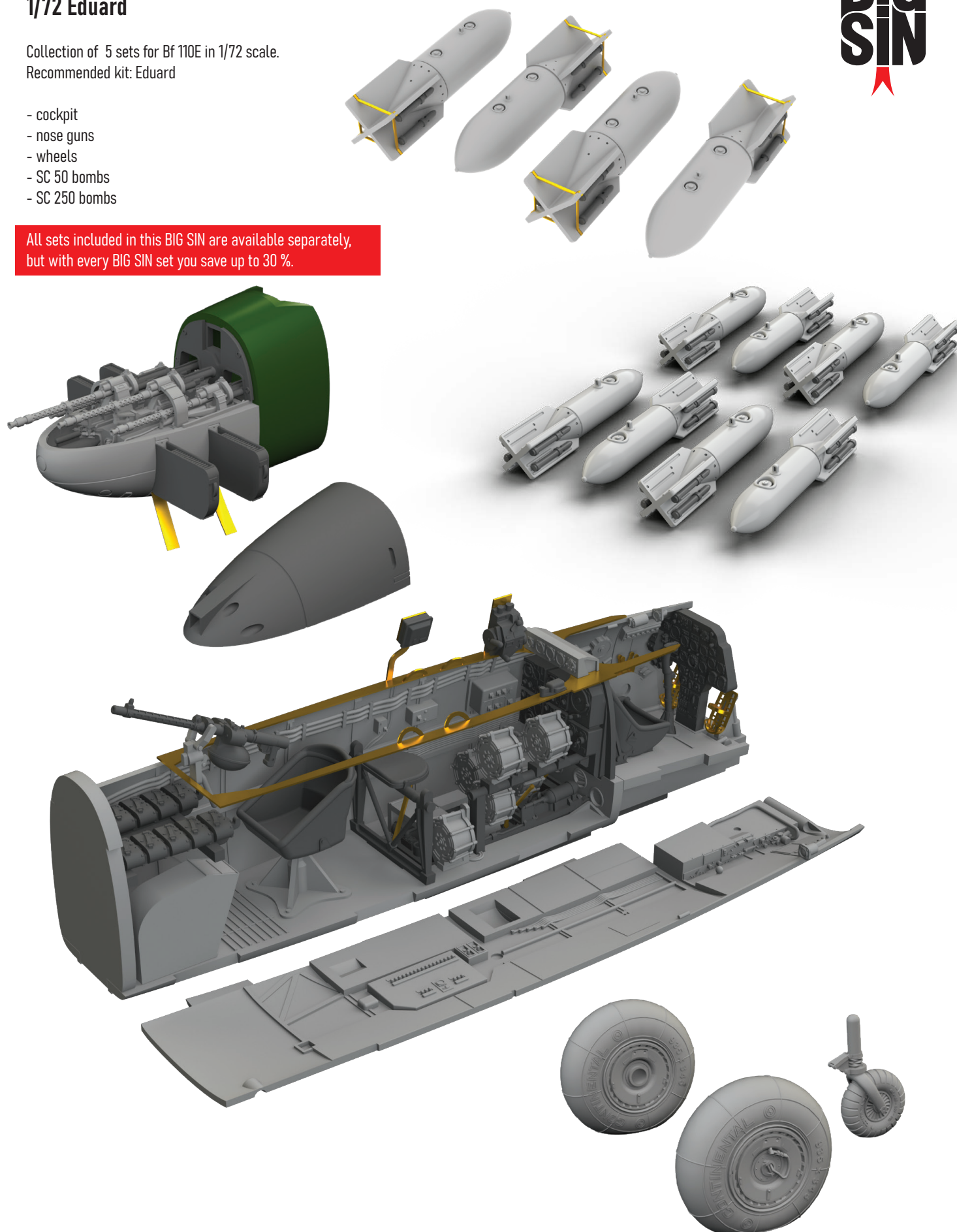
**Bf 110E**

1/72 Eduard

Collection of 5 sets for Bf 110E in 1/72 scale.  
Recommended kit: Eduard

- cockpit
- nose guns
- wheels
- SC 50 bombs
- SC 250 bombs

All sets included in this BIG SIN are available separately,  
but with every BIG SIN set you save up to 30 %.





**PE-SETS**

|        |                                              |      |            |
|--------|----------------------------------------------|------|------------|
| 321011 | F-35A                                        | 1/32 | Trumpeter  |
| 321012 | A-20G                                        | 1/32 | HKM        |
| 481113 | Hurricane Mk.I landing flaps                 | 1/48 | Hobby Boss |
| 481114 | Hurricane Mk.I gun bays                      | 1/48 | Hobby Boss |
| 481115 | Do 335A bomb bay                             | 1/48 | Tamiya     |
| 481116 | Mi-4A cargo floor                            | 1/48 | Trumpeter  |
| 481117 | F-4E reinforcement straps & formation lights | 1/48 | Meng       |
| 491362 | Mi-4A                                        | 1/48 | Trumpeter  |
| 491364 | Hurricane Mk.I                               | 1/48 | Hobby Boss |
| 491366 | MiG-17F                                      | 1/48 | Ammo       |
| 73803  | Mosquito PR.XVI                              | 1/72 | Airfix     |

**ZOOMS**

|        |                                |      |            |
|--------|--------------------------------|------|------------|
| 33353  | F-35A                          | 1/32 | Trumpeter  |
| 33354  | F-35A seatbelts STEEL          | 1/32 | Trumpeter  |
| 33355  | A-20G                          | 1/32 | HKM        |
| 33356  | A-20G seatbelts STEEL          | 1/32 | HKM        |
| FE1362 | Mi-4A                          | 1/48 | Trumpeter  |
| FE1363 | Mi-4A seatbelts STEEL          | 1/48 | Trumpeter  |
| FE1364 | Hurricane Mk.I                 | 1/48 | Hobby Boss |
| FE1365 | Hurricane Mk.I seatbelts STEEL | 1/48 | Hobby Boss |
| FE1366 | MiG-17F                        | 1/48 | Ammo       |
| FE1367 | MiG-17F seatbelts STEEL        | 1/48 | Ammo       |
| FE1368 | Bf 110G-4 Weekend              | 1/48 | Eduard     |
| SS803  | Mosquito PR.XVI                | 1/72 | Airfix     |
| SS804  | Fw 190A-5 Weekend              | 1/72 | Eduard     |

**MASKS**

|       |                                 |      |            |
|-------|---------------------------------|------|------------|
| JX313 | F-35A                           | 1/32 | Trumpeter  |
| JX314 | F-35A TFace                     | 1/32 | Trumpeter  |
| JX315 | A-20G                           | 1/32 | HKM        |
| JX316 | A-20G TFace                     | 1/32 | HKM        |
| EX953 | P-51D surface panels            | 1/48 | Eduard     |
| EX954 | P-51D national insignia         | 1/48 | Eduard     |
| EX955 | A6M2 Model 21 national insignia | 1/48 | Eduard     |
| EX956 | F-4E surface panels             | 1/48 | Meng       |
| EX957 | MiG-17F                         | 1/48 | Ammo       |
| EX958 | MiG-17F TFace                   | 1/48 | Ammo       |
| EX959 | Hurricane Mk.I TFace            | 1/48 | Hobby Boss |
| EX960 | Mi-4A                           | 1/48 | Trumpeter  |
| EX961 | Mi-4A TFace                     | 1/48 | Trumpeter  |
| EX962 | F-4E wheel bays                 | 1/48 | Meng       |
| EX963 | Bf 110G-4 Weekend               | 1/48 | Eduard     |
| CX649 | Mosquito PR.XVI                 | 1/72 | Airfix     |

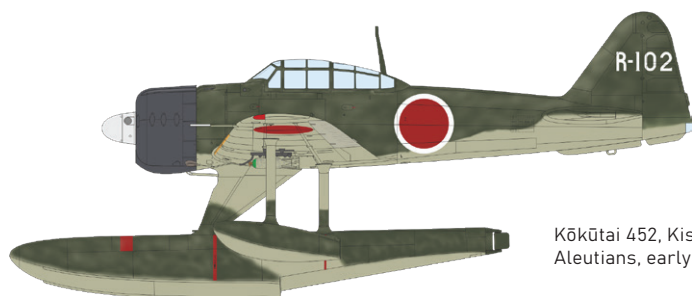
**SPACE**

|          |                       |      |            |
|----------|-----------------------|------|------------|
| 3DL32018 | F-35A SPACE           | 1/32 | Trumpeter  |
| 3DL32019 | A-20G SPACE           | 1/32 | HKM        |
| 3DL48124 | MiG-17F SPACE         | 1/48 | Ammo       |
| 3DL48125 | Hurricane Mk.I SPACE  | 1/48 | Hobby Boss |
| 3DL48126 | Mi-4A SPACE           | 1/48 | Trumpeter  |
| 3DL72019 | Mosquito PR.XVI SPACE | 1/72 | Airfix     |

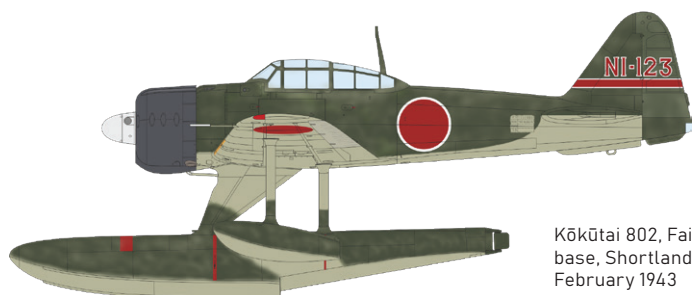
# A6M2-N Rufe

#82219

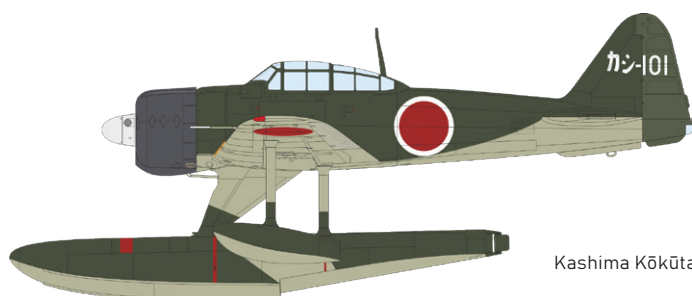
1/48


**ProfiPACK**  
 edition


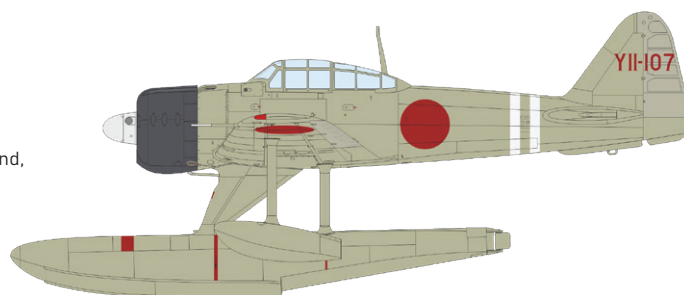
Kōkūtai 452, Kiska island,  
Aleutians, early 1943



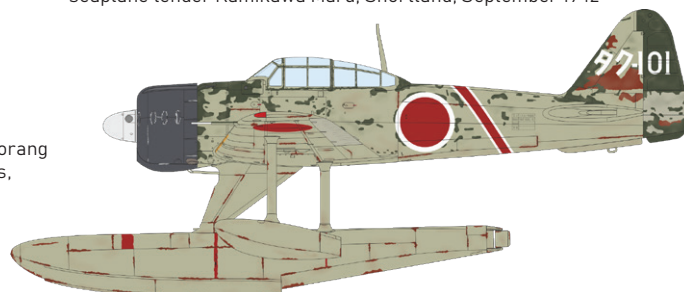
Kōkūtai 802, Faisi-Poporang  
base, Shortland Islands,  
February 1943



Kashima Kōkūtai, Kashima base, Japan, 1944



Seaman 1st class, Takio Maruyama, aviation unit of  
seaplane tender Kamikawa Maru, Shortland, September 1942



Takuma Kōkūtai, Takuma base, Japan, 1944

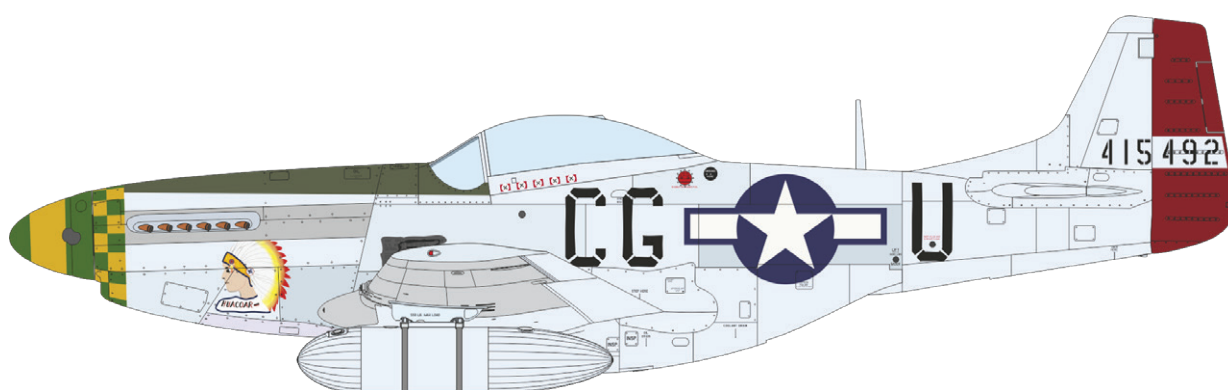


# MIGHTY EIGHTH: #11174

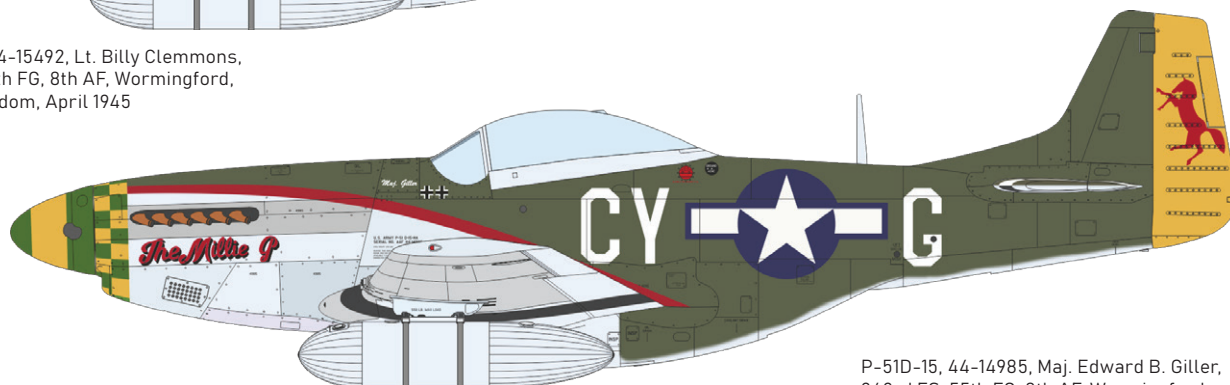
## 66th Fighter Wing

1/48

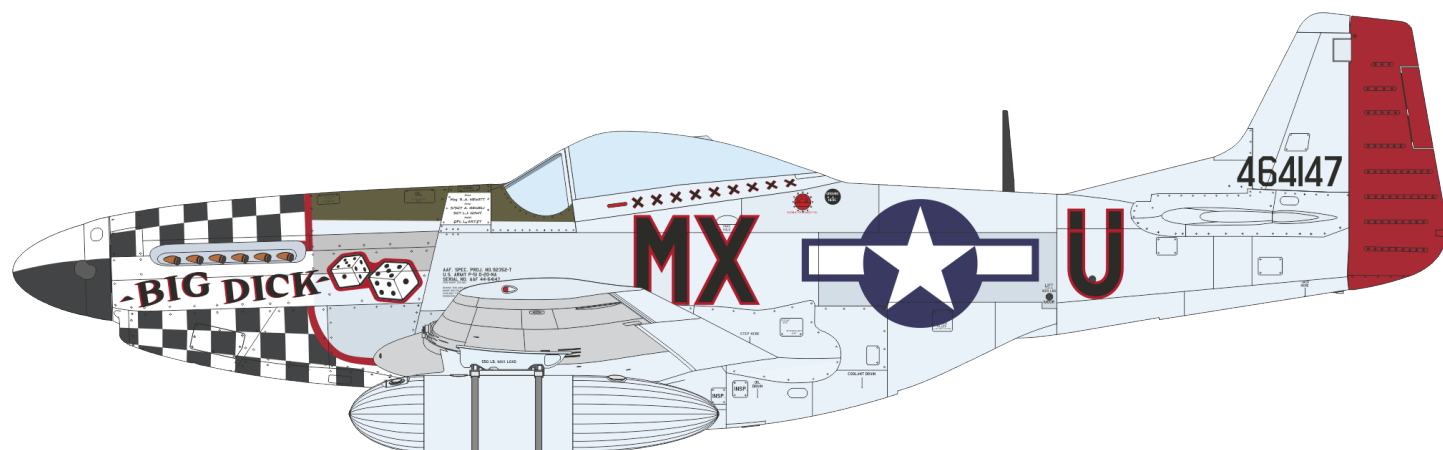
LIMITED



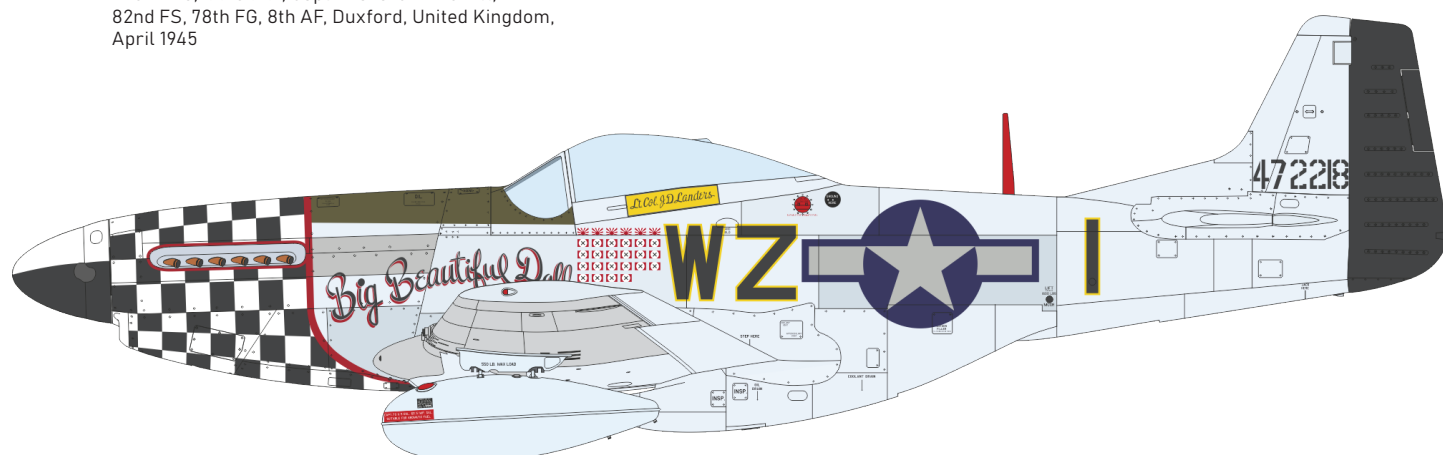
P-51D-15, 44-15492, Lt. Billy Clemmons,  
38th FS, 55th FG, 8th AF, Wormingford,  
United Kingdom, April 1945



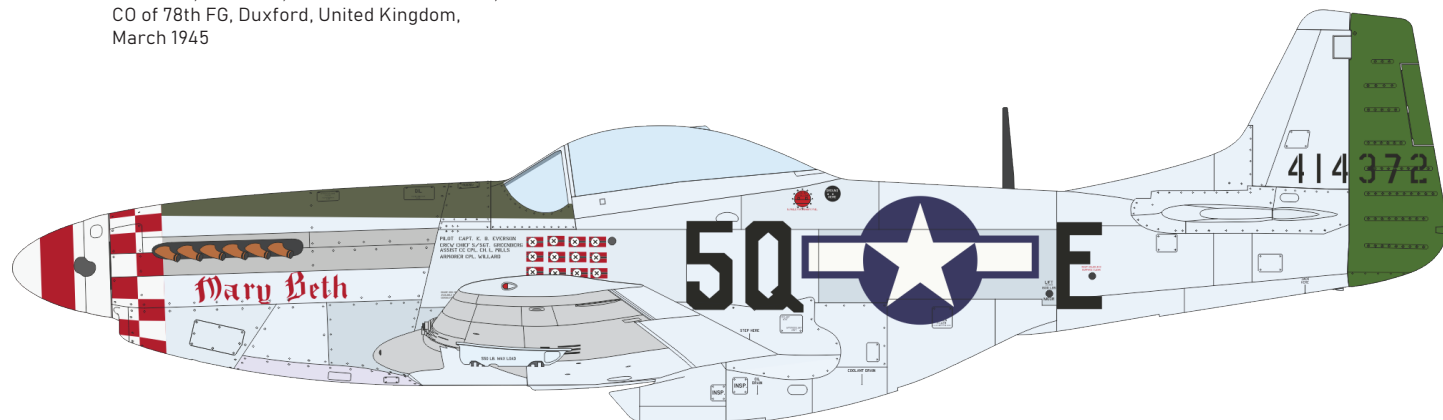
P-51D-15, 44-14985, Maj. Edward B. Giller,  
343rd FS, 55th FG, 8th AF, Wormingford,  
United Kingdom, September 1944



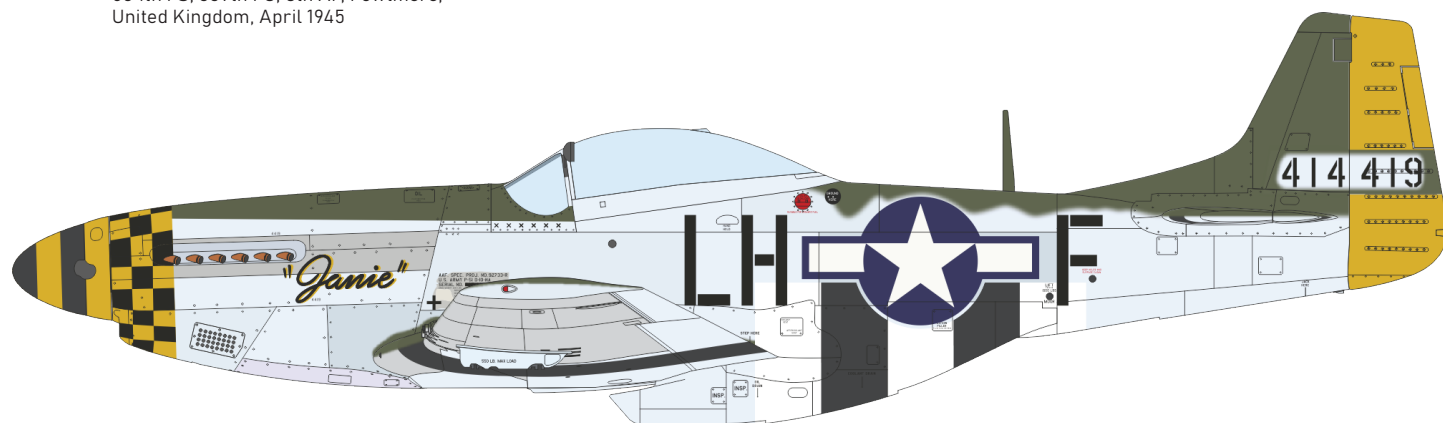
P-51D-20, 44-64147, Capt. Richard A. Hewitt,  
82nd FS, 78th FG, 8th AF, Duxford, United Kingdom,  
April 1945



P-51D-20, 44-72218, Lt Col. John D. Landers,  
CO of 78th FG, Duxford, United Kingdom,  
March 1945

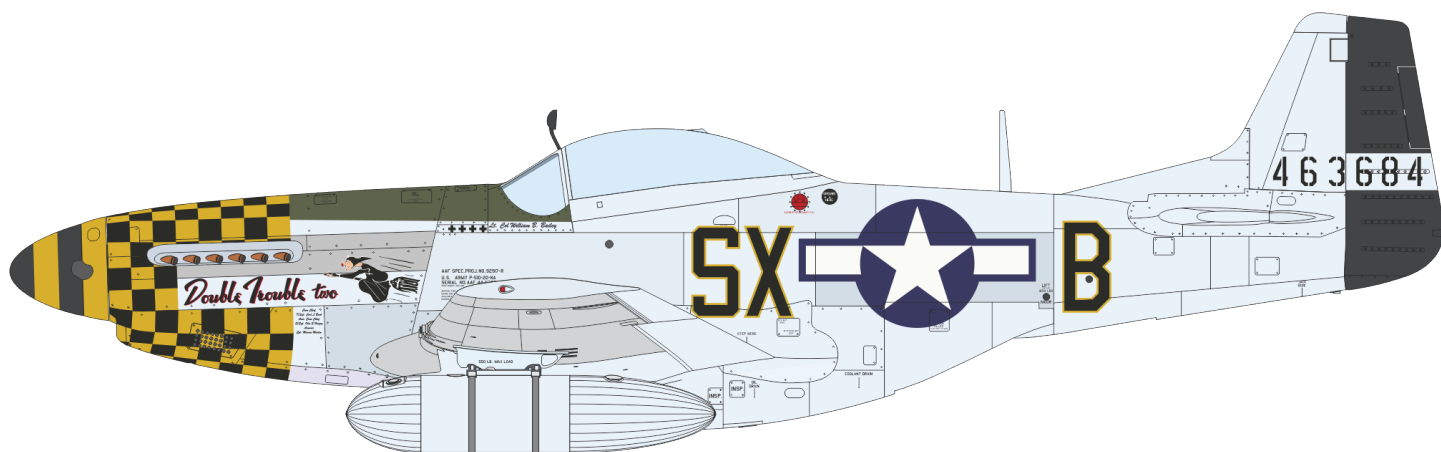


P-51D-10, 44-14372, Capt. Kirk B. Everson,  
504th FS, 339th FG, 8th AF, Fowlmere,  
United Kingdom, April 1945

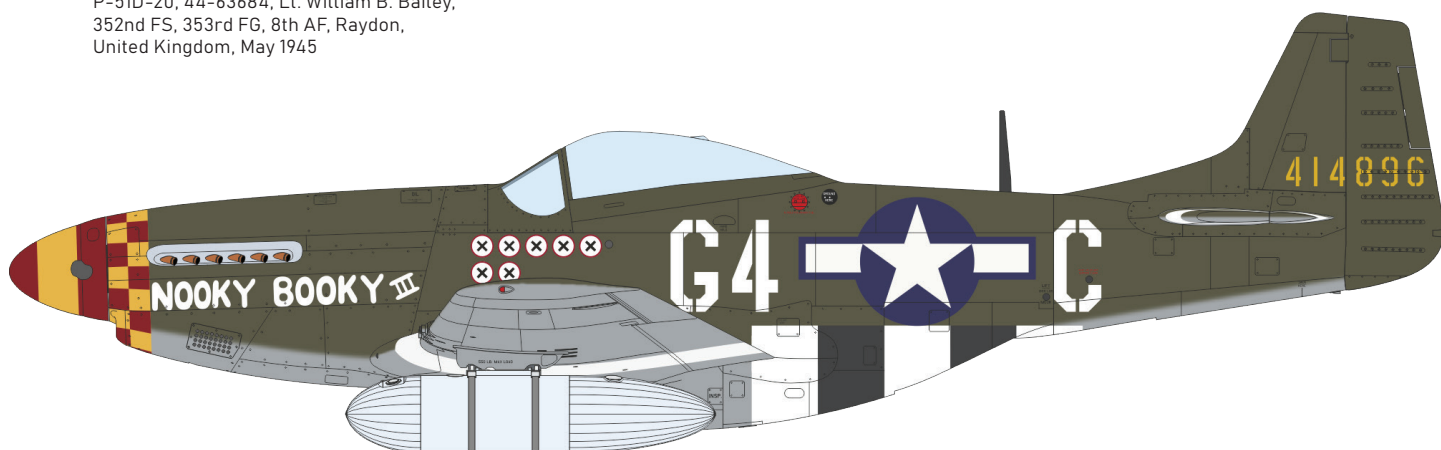


P-51D-10, 44-14419, Capt. William B. Price,  
350th FS, 353rd FG, 8th AF, Raydon,  
United Kingdom, December 1944

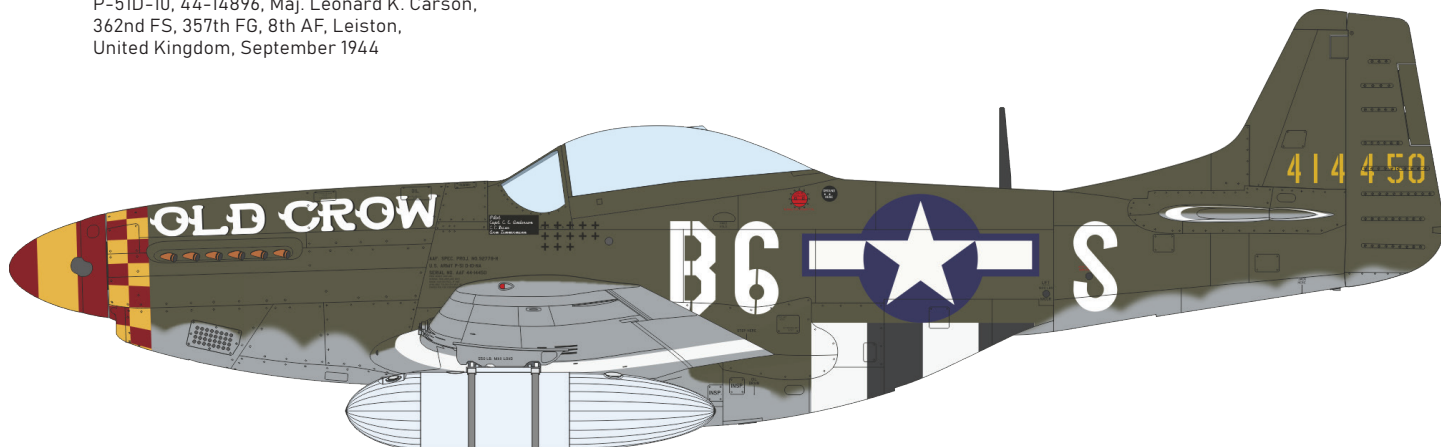




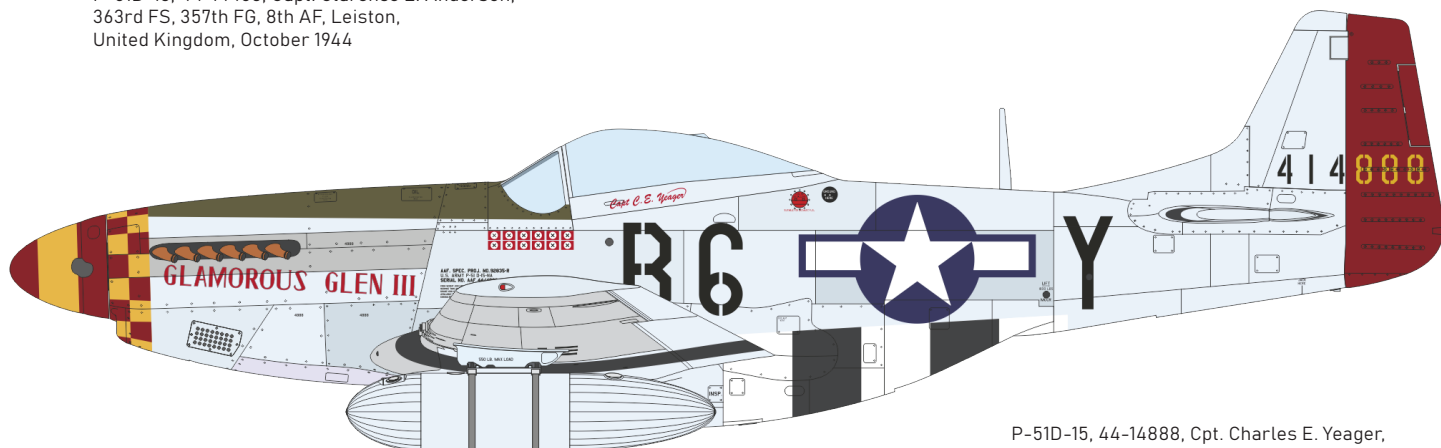
P-51D-20, 44-63684, Lt. William B. Bailey,  
352nd FS, 353rd FG, 8th AF, Raydon,  
United Kingdom, May 1945



P-51D-10, 44-14896, Maj. Leonard K. Carson,  
362nd FS, 357th FG, 8th AF, Leiston,  
United Kingdom, September 1944



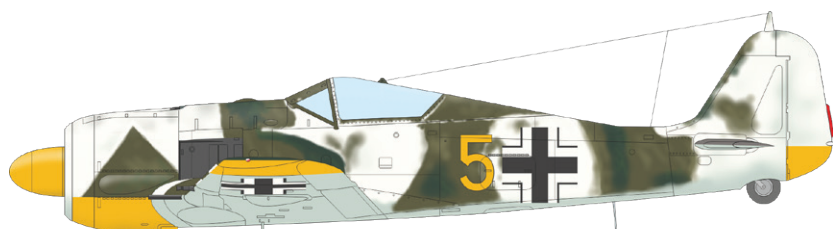
P-51D-10, 44-14450, Capt. Clarence E. Anderson,  
363rd FS, 357th FG, 8th AF, Leiston,  
United Kingdom, October 1944



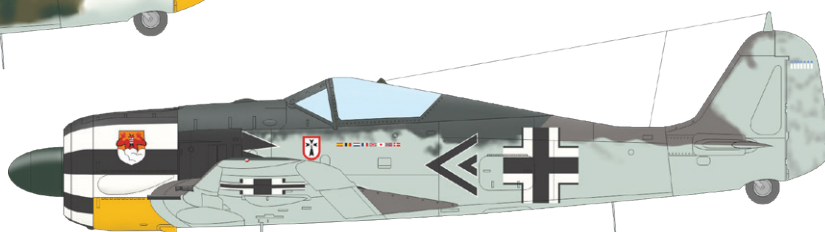
P-51D-15, 44-14888, Cpt. Charles E. Yeager,  
363rd FS, 357th FG, 8th AF, Leiston,  
United Kingdom, October 1944 - January 1945

# Fw 190A-5 #7470

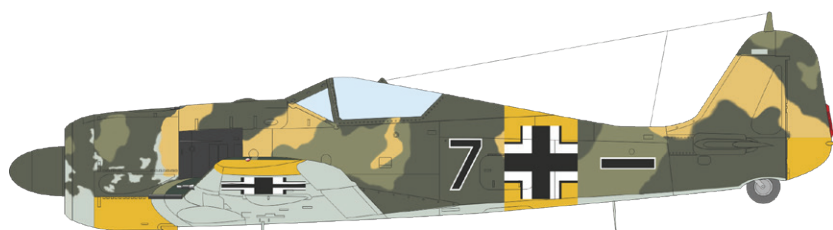
# 1/72



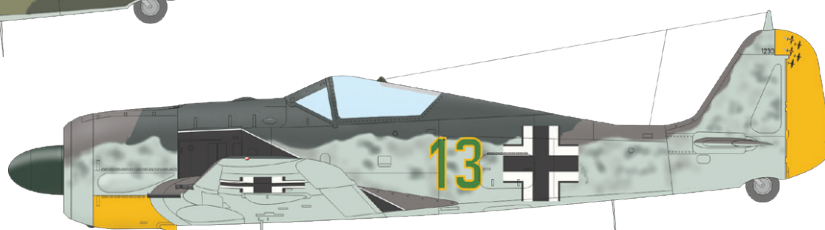
Oblt. Rolf Hermichen, 3./JG 26,  
Dno field base, the Soviet Union, March 1943



Maj. Fritz Losigkeit, CO of I./JG 1, Deelen,  
the Netherlands, April 1943



Lt. Emil Lang, 5./JG 54, Orel,  
the Soviet Union, summer 1943



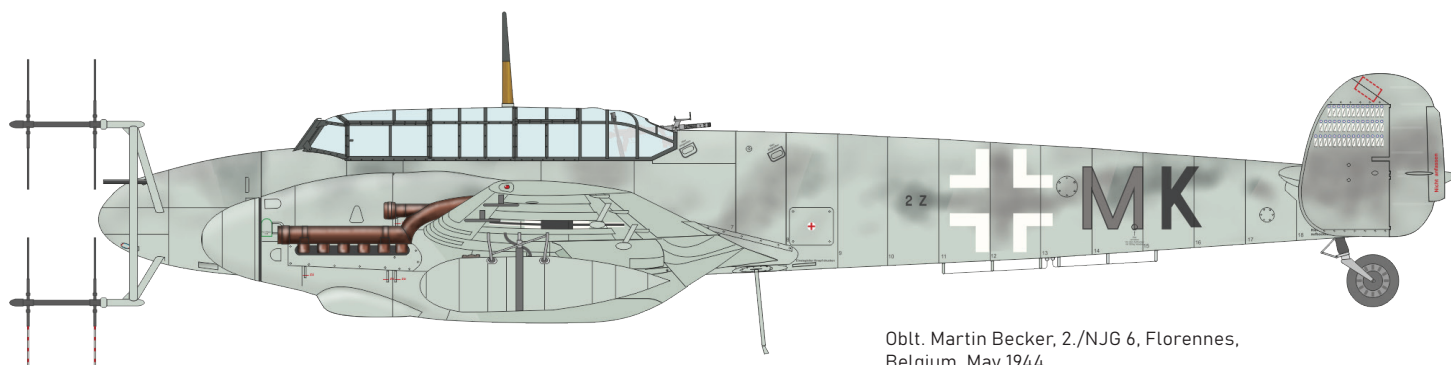
WNR. 1230, Obstlt. Walter Oesau, CO of JG 2,  
Beaumont le Roger, France, June 1943



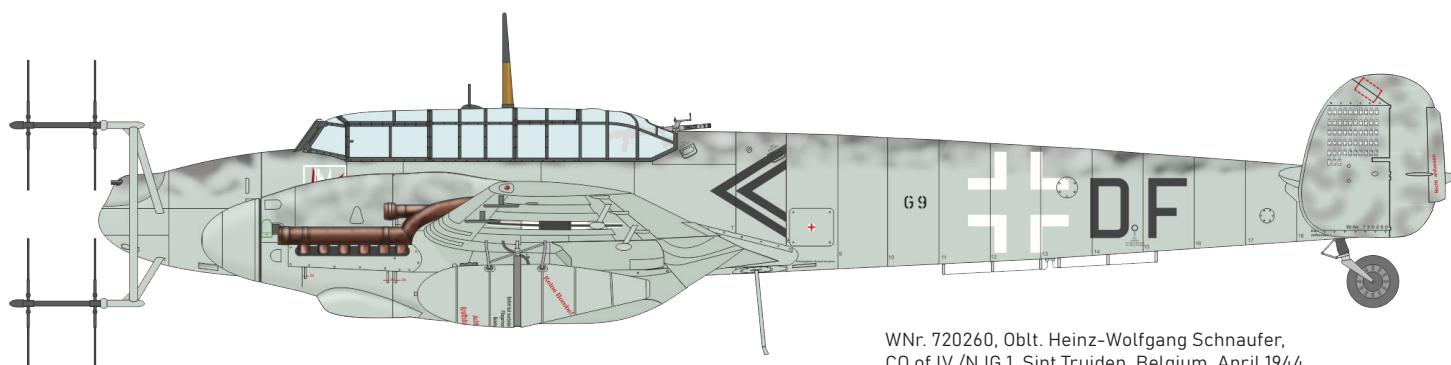
# Bf 110G-4 #8405

# 1/48

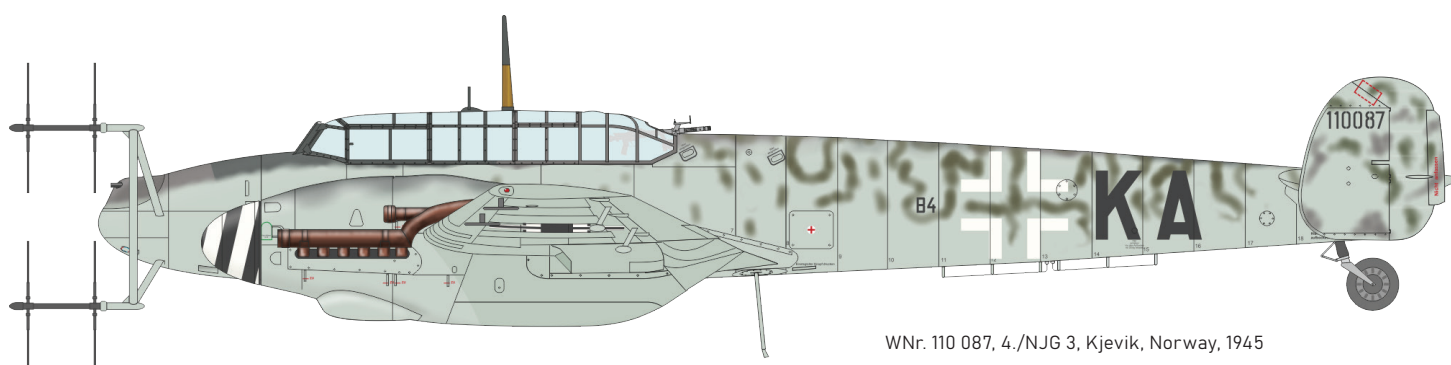
**WEEKEND**  
edition



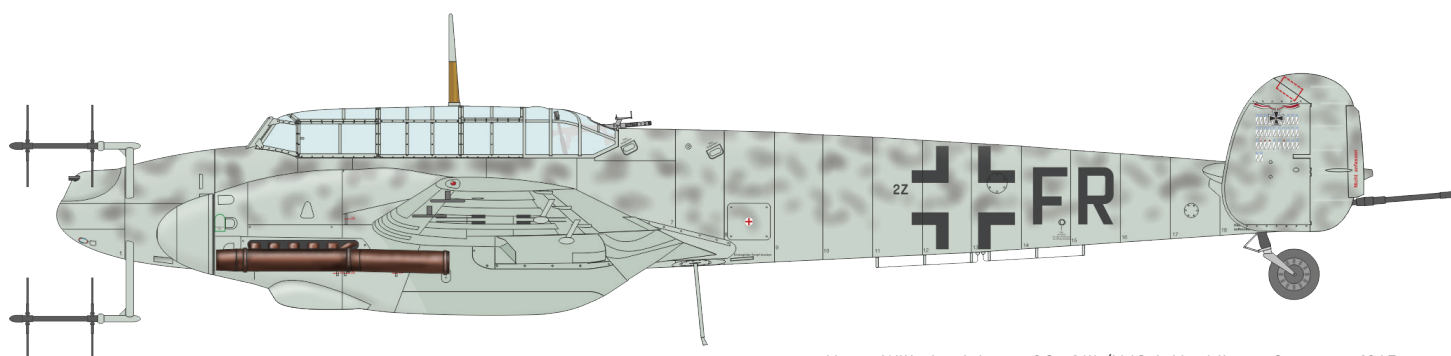
Oblt. Martin Becker, 2./NJG 6, Florennes, Belgium, May 1944



WNR. 720260, Oblt. Heinz-Wolfgang Schnauffer, CO of IV./NJG 1, Sint Truiden, Belgium, April 1944



WNR. 110 087, 4./NJG 3, Kjevik, Norway, 1945



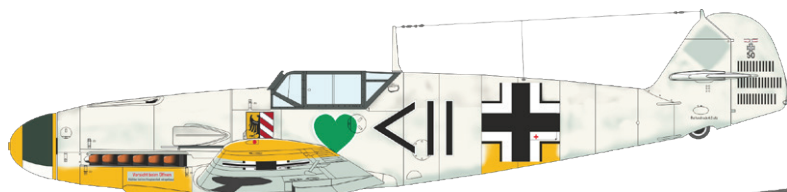
Hptm. Wilhelm Johnen, CO of III./NJG 6, Neubiberg, Germany, 1945

## Bf 109F-2

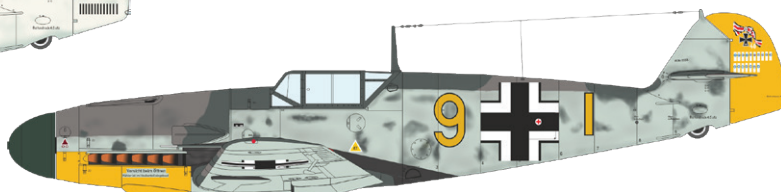
#82115

1/48

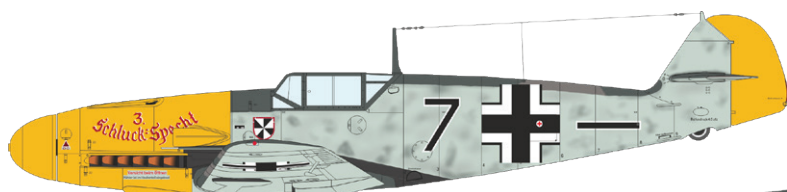
Re-release

ProfiPACK  
edition

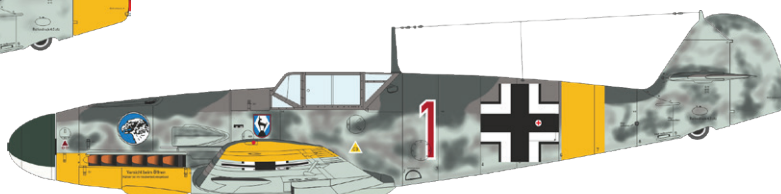
Bf 109F-2, Hptm. Hans Philipp, CO of I./JG 54,  
Krasnogvardeysk, the Soviet Union, March 1942



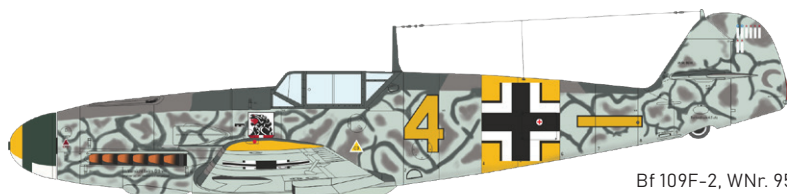
Bf 109F-2, WNr. 9553, Oblt. Siegfried Schnell,  
CO of 9./JG 2, Théville, France, November 1941



Bf 109F-2, Lt. Horst Buddenhagen, 5./JG 3,  
Darmstadt, Germany, April 1941

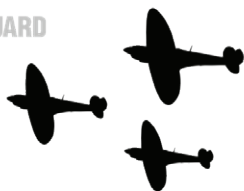


Bf 109F-2/b, Oblt. Wilhelm Hachfeld,  
2./JG 51, Kiev, the Soviet Union, Summer 1941



Bf 109F-2, WNr. 9538, Lt. Hans Beisswenger,  
6./JG 54, Ostrov, Soviet Union, July 1941





## EDUARD IN MOSON ON THE TABLES, NOT ON THE SHELVES

Text and photo: Richard Plos

It was after four years break, I returned to Moson to visit the Modelshow. I travelled privately, not as a part of the Eduard team with their "travelling big top", as Jakub Nademlejnský jokingly named Eduard's stand in this column recently. If I were to highlight the two biggest positives perceived by me, it would be the reconstructed thermal pool with the hottest water of the local spa and then the frequency with which I was spotting models made from our kits while observing the exhibition tables. I tried to keep it at least fleetingly in my memory (which, admittedly, isn't what it used to be) and by the end of my "tour" around the tables dedicated to the aircraft models I was clear: No other manufacturer had so many models on their tables. Not a chance ... Except of course of the 1/32 or 1/24 scales, which are not our domain. On the other hand, when counting the accessories used, Eduard's representation here was significant as well. I was happy about that and immediately thought of the catchphrase that Eduard kits are here to be built, not stored ... I understand that I'm touching a raw nerve, as most of us have our own wardrobe that can easily take us to the Narnia for plastic modelers, but I still think our models are popular with seventy-second, forty-eighth, and to a large extent also to the 144th scale lovers not just as collector's items, but also as an object of our

hobby in the best meaning of it, i.e., building, painting and weathering rather than finding the best layout of the boxes on the shelves to create a loophole in which to insert the next addition to the unbuilt collection. In addition, Eduard has recently made further progress in the quality of its kits in terms of the design as well as surface detailing. I understand it sounds like self-applause, but on the other hand I would like to believe that you feel the same way and like our kits because of the progress made as well.

By the way, the prices of almost everything have been going up in the last two years (and not only here in Czech Republic) and so did the prices of kits and accessories. It's only logical, as all the inputs were also going up, inevitably affecting the selling prices. Still, everything has its limitations. For example, I don't think that almost 27 Euro for a kit of a 1/72nd WWII single-engine fighter is the right price. I mean the kit containing one set, to be clear. Occasionally, someone does create a sort of "wow" effect with his new release, which I personally understand, but I also think that such a hype doesn't last forever, and no huge spendings on such kits actually happen. In fact, the "wow" phase will finally give way to the typical "side hobby" of our hobby, which is the looking for any faults of the kit and while we're at it, no one can tell me that the exorbitant price isn't a fault. I myself have

resisted the initial "wow" phase with some of the kits of my heart, sold at prices I was feeling were not right and so I just waited for a suitable secondhand opportunity ... You could rightly argue that Eduard also raised the prices this year. Well, you are true. But we still try to balance the prices to keep them at a friendly level. An example of this can be the new Weekend Edition Zero Model 21 in 1/48th scale, which costs just around 23 Euro. And it is the same price we were selling Weekend Edition kits of similar size last year. The "Wunderschöne neue Maschinen" can be had for just under 30 Euro, which is of course the price for two complete kits. So, when counted for one, it comes out to a nice 15 Euro. That doesn't seem that much for a 1/72nd Bf 109 F kit with die-cut masks, pre-painted photo-etched details, and decals for seven marking options (for each one, as there are 14 markings offered in the kit). I think the good price is also somewhat related to the number of the kits finished, and the number of the models built from Eduard kits on the tables at Moson Model Show suggests to me that we are not off, when it comes to pricing. I am attaching some photos from the show, just to show some of the models. Excuse the quality (of the photos, not of the models), they were taken only by my aging mobile phone ...





