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Instruction sheet

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KURFÜRST

Bf 109K-4

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&
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Illustration: Piotr Forkasiewicz

No other aircraft is as intimately connected with the rise and fall of the German Luftwaffe in the course of the WWII as the Messerschmitt Bf 109. A very progressive design at the time of its invention, it had plenty of room for further development, which culminated in form of the Kurfürst version.

The history of the Bf 109 began at the end of March 1933, when the Reich Ministry of Aviation formulated specification L. A. 1432/33 for the development of a single-engine monoplane fighter. The competition to supply the new fighter was entered by Arado, Heinkel, Focke-Wulf and Bayerische Flugzeugwerke. The last mentioned included as its technical director Willy Messerschmitt, whose reputation was greatly strengthened by the success of his Bf 108 courier aircraft, completed not long before. Messerschmitt's goal was to create an aircraft with the best possible power to overall weight ratio and to focus on the size of the machine. The result was a low-wing aircraft with subtle aerodynamic shapes and progressive design elements, such as an all-metal structure, retractable landing gear, slots, flaps, a closable canopy and a shell structure making up the fuselage. Thanks to this, Messerschmitt's Bf 109 somewhat surprisingly won the competition over the designs of more renowned competitors.

The first combat deployment of three test Bf 109s took place during the Spanish Civil War in December 1936. Units of 2.J/88 Legion Condor gradually gained valuable combat and tactical experience with the developmental versions of the Bf 109 B-1 to the E-1, in which the original and problematic Jumo 210 engine was replaced by the modern inverted V twelve-cylinder inline DB 601. Together with the later DB 605, it powered several tens of thousands of produced 109s in more than twenty-five versions and subtypes.

Bf 109 E

Introduced into Luftwaffe service in 1939, the Bf 109 E was fitted with the new Daimler-Benz DB 601 engine, driving a VDM-9 three-blade variable pitch propeller. Production of the E-1 with four 7.9mm machine guns and the E-3 with two of these machine guns and two MG-FF 20mm cannons, ran in unison from the beginning of 1939. Thus, the Luftwaffe entered World War II armed with the most modern and powerful standard single-engine fighter in the world, forming the backbone of its units until the spring of 1941. The invasion of Poland, through the Sitzkrieg on the Western Front, the invasion of Norway, the Battle of France to 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, however, it became increasingly clear that the time was ripe for change.

Bf 109 F

This arrived in the form of the Bf 109 F, the development of which began as early as the fall of 1938. It was designed for the new DB 601 E engine with an estimated output of 1,350 hp, compared to 1,100 hp of the DB 601 A engine. As a result of the

work of the design team led by chief designer Robert Lusser, it was significantly innovative both technically and visually, and also brought about a change in the concept of installing offensive weapons, when the two MG FF cannons installed in the wing were replaced by a fuselage cannon, located between the engine cylinders and firing through the propeller hub. The first production version, the Bf 109 F-2, powered by the DB 601 N engine and armed with a 15mm MG 151/15 fuselage gun and two 7.92mm MG 17 machine guns above the engine, began to arrive at units in the spring of 1941. The more powerful Bf 109 F-4, powered by a DB 601 E engine and armed with a 20mm MG 151/20 cannon, was introduced into service in the summer of 1941.

Bf 109 G

Further development was associated with the new DB 605 A engine with a power output of 1,454 hp, which was the basis of the Bf 109 G series. The first version of the Bf 109 G-2 had only minor technical improvements over the Bf 109 F-4, apart from the more powerful engine, and had the same armament, as did the subsequent Bf 109 G-4, produced from December 1942. The Bf 109 G-2 gradually replaced the Bf 109 F with combat units during the second half of 1942, and in early 1943 they were replaced by the Bf 109 G-4. In following version of the Bf 109 G, the dash 6, the development was represented mainly by an armament upgrade by replacing the MG 17 machine guns with more powerful MG 131 13mm weapons. Thanks to higher engine output, all Bf 109 Gs used under-wing gun pods housing MG 151 cannons. Production of the Bf 109 G-6 began in February 1943 and ended in December 1944. Due to the long production period, there were a number of technical issues with the individual series changes that, among other things, were reflected in the external appearance of the aircraft, mainly by the introduction of a new cockpit canopy and a more efficient higher rudder. The G-6 was followed by the Bf 109 G-14 powered by the DB 605 AM engine, using 100 octane C3 fuel. With the use of a system that injected a mixture of methanol and water into the MW 50 cylinders, power output could be boosted to 1,775 hp for a short time. Production of the Bf 109 G-14 began at the Erla works in Leipzig in July 1944 and ended in March 1945.

Bf 109 G-6/AS and G-14/AS

The replacement of the Bf 109 with more modern fighters, anticipated for 1944, did not happen before the end of the war. The Bf 209 under development failed and the project was terminated. The Fw 190 A entered service as early as 1941, but it was complex and expensive to manufacture, so it was always in short supply.

Compared to the Bf 109 G, it also had worse performance at higher altitudes. In August 1943, at a meeting at the Reich Ministry of Aviation (RLM), as part of the measures to ensure the defense of the Reich, it was decided to continue the development of the Bf 109 into the Bf 109 K variant. It was assumed that the developed DB 605 D engine would be used to power the K, and a 30mm MK 103 or MK 108 cannon would be its armament. One of the requirements for the new Bf 109 K stipulated the use of wood and steel in the construction of the aircraft. However, there were also delays in the development of the Bf 109 K. It was therefore decided to install the DB 605 D engine in the airframe of the Bf 109 G-14, creating the Bf 109 G-10 as a transitional type between the G-14 and the K-4. However, the development of the DB 605 D engine was not immune to delays either, necessitating the use of the DB 605 AS engine as an emergency measure, which followed a similar development path by installing a more powerful compressor. Its integration into the Bf 109 G-6 and G-14 airframes created a powerful machine that ensured a continuous increase in the performance of the Bf 109. The first Bf 109 G-6/AS began to leave the Messerschmitt factory in Regensburg in April 1944, and in July, the Erla company started in Leipzig to produce the Bf 109 G-14/AS. The advantage of these Bf 109 G-6/AS and G-14/AS was the possibility of using older airframes of the Bf 109 G series for conversion to more powerful versions by installing the DB 605 AS engine. As a result, a total of 686 Bf 109 G-6/AS were produced, of which only 226 were new builds, the rest were conversions from the original G-6.

Bf 109 G-10

In the summer of 1944, deliveries of the DB 605 D engine with a barometric automatic control system of the compressor speed dictated by altitude began. These engines came in two main versions, the DB 605 DB for the use of 87 octane B4 fuel, and the DB 605 DC, powered by 96 octane C3. The Erla factory in Leipzig had a Bf 109G-10 airframe ready for this engine, which started their production as early as September 1944. Most of the machines built at Erla were of the Bf 109G-10/R-6 version, equipped with a PKS 12 autopilot and additional aids for night and adverse weather flying, and as such, most of them were delivered to single-engine night fighter units operating within the Wilde Sau free pursuit system. The WNF/Diana factory produced the Bf 109 G-10/U4 version from December 1944, armed with the 30mm MK 108 engine mounted cannon. Out of a total of about 2,600 Bf 109 G-10s produced, about 1,700 were by Erla, 800 by WNF/Diana, and only 123 came from Regensburg between October and December 1944. This was because production of the first batch of 386 Bf 109K-4s in the 330xxx series had already started there in August 1944.

Bf 109 K-4

Based on the conclusions of a meeting at the RLM on August 9, 1943, preparatory work was underway on the design of the Bf 109 K-1 and K-3, equipped with a pressurized cockpit, and the Bf 109 K-2, a standard fighter aircraft, powered by the DB 605 D or DB 605 AS engine, armed with a MK 108 engine mounted cannon of 30 mm caliber and two 13mm MG 131 machine guns. After another series of meetings between General Milch and Minister Albert Speer and their teams in March 1944, there was a reassessment of priorities in the development and production of new aircraft. After the resumption of Allied air attacks in February 1944, aircraft production in Germany fell sharply. In response to the new situation, the Jägerstab was created under the leadership of Otto Saur, which had the task of adapting the production of fighter aircraft to the conditions of intensive air attacks on German industrial capacity and infrastructure. A 72-hour work week was introduced, the dispersion of production capacities into forest and underground factories began, and a number of other partial measures were taken to solve the resulting crisis. In June 1944, aircraft production was concentrated only on fighters, and the plan from July 1944 counted on the monthly production of 500 Bf 109s. Production was to focus on the piston engined Fw 190 D, Ta 152 and the jet powered Me 262. However, the start of production of new types was slow and production continued of the proven Bf 109 G-14/AS, G-10 and, from autumn 1944, the Bf 109 K-4. The Jägerstab, whose tasks were taken over by the Technical Department of the Ministry of War Production in August 1944, still under the leadership of Otto Saur, managed to bring aircraft production in Germany to a record level of 3,375 newly produced and another 1,500 refurbished machines in September. It should be mentioned, however, that it was at the cost of the lives of thousands of fully committed workers from occupied countries, concentration camp prisoners and prisoners of war, mainly Soviet. At the same time, September saw the resumption of the Allied bombing offensive against Germany, interrupted in June 1944 due to the involvement of Allied strategic air forces in supporting the Allied landings in Normandy. The escalating bombing offensive gradually continued to complicate all German war production.



Photo: JaPo

Bf 109 K-4 "White 2" of 9./JG 77 with early style camouflage on upper surfaces photographed in Neuruppin in November 1944.



Photo: JaPo

Bf 109 K-4 WNr. 330 255 "Black chevron" of Stab III./JG 27 in Wunstorf in May 1945 with early style camouflage on upper surfaces.

It was under these conditions that the development and start of production of the Bf 109 K-4 took place. As a result of the events described above, further development of the K-1, K-2 and K-3 versions was halted and development, under the leadership of Product Chief Ludwig Bölkow and Chief Designer Richard Bauer, was concentrated exclusively on the newly conceived K-4 version. Negotiations were held on the continuation of its development in the spring of 1944, but the aforementioned circumstances led to the decision to introduce production of the Bf 109 K-4 as a stopgap fighter until the arrival of new types. Even the development of the Bf 109 K-4 was not without problems, leading to the development of the Bf 109 G-14/AS and Bf 109 G-10 as indicated earlier, but one must take into account the extremely complex situation in which these decisions were made and implemented.

The final concept of the type was approved in June 1944. The Bf 109 K-4 was to be powered by a 1,775 hp DB 605 D engine, armed with a 30mm MK 108 cannon and two 13mm MG 131 machine guns. The propeller was a three-bladed, variable pitch VDM-9-12159A. A number of components associated with the engine installation were carried over from the Bf 109 G-10 out of the Regensburg factory, including the large Fö 987 oil cooler and the engine cowling. The use of non-deficit (Ersatz) materials was still considered, but the original idea of an all-wooden wing was abandoned due to the technological limitations of wood, and the wing remained all-metal. The tail part of the fuselage and some small details were made of wood, some of the longitudinal members of the fuselage were made of steel. The layout of the cockpit was revised, which was made more efficient with a new side panel and a new oxygen system. Armor plating was also modified. The sight was the standard Revi 16B, but some later machines apparently received the modern gyroscopic sight EZ 42. A significant change in the wing was the strengthening of the landing gear, the introduction of mechanical landing gear position indicators on the upper surface of the wing, and above all, the retractable outboard landing gear covers which, together with the retractable tailwheel, were supposed to contribute to improvement of the aerodynamics of the aircraft and thereby increase the maximum speed. These covers were closed by the wheel exerting pressure on a mechanical lever when retracted. The tires were sized at 690 x 190 mm, which necessitated the creation of large oblong bulges above the landing gear well, the same as the WNF/Diana production Bf 109 G-10/U4 and some Erla

production machines. The right wing also housed oxygen cylinders, while the left wing contained space for the GM-1 pressure bottles that some machines were equipped with. However, the standard equipment was the MW 50 system, the placement of which in the fuselage was adjusted so that the container no longer extended into the rear wall of the cockpit and did not require a protruding cover, as with the Bf 109 G-14 and G-10 versions. The radio equipment was identical to the G-10, but the wire antenna in most machines did not have a mast on the cockpit canopy or behind it but was led directly into the fuselage on top of the second fuselage segment. The location of the equipment in the fuselage, the radio itself and related components, including the compass, underwent a change. The inspection hatch on the left side of the fuselage, which was used to access both the radio equipment and the compass, was also relocated.

Due to the rush and the overall critical war situation, the development of the aircraft took place in a nontraditional way. Classic prototypes were not built, and test aircraft were taken right off the already running production line. Thus, some technical issues were identified at a time when they were already in production and the aircraft were delivered with them to combat units. Understandably, difficulties flowed from this setup. For example, there was insufficient rigidity in the locking mechanism of the tailwheel, which tended to loosen on its own when the aircraft was moved, which led to the unexpected retraction of the unit. Therefore, the tailwheel was often locked in the down position and the wells were permanently blanked off. This resulted in cases in which the position of the tailwheel differed, and three configurations can be found. There were also problems with the outer covers of the main wheel wells, and they were often removed. This rendered these aerodynamic features useless, and the Bf 109 K-4 reverted to the undercarriage configuration identical to the older versions of the Bf 109. There were also difficulties with the MK 108 cannon operation, which

a reduction in fuel supplies for non-combat units, including training centers, which eventually had fatal consequences for the quality of training of new crews of any combat equipment, not only aircraft. Logically, it also had an effect on the operational capabilities of combat units. Nevertheless, the German armed forces remained fully combat-ready until the first days of May 1945. However, it must be remembered that this German tenacity came at the enormous cost of life of both soldiers and civilians in the last year of the war. It is a little known fact that half of all loss of life on the European battlefield between 1939 and 1945 occurred in the last year of the war, from the Allied landings in Normandy to the unconditional surrender of the German armed forces on May 8, 1945.

Bf 109 K-4 Combat Use

Messerschmitt Bf 109 K-4s began to be delivered to combat units in October 1944, and until the end of the year these aircraft were allocated to units on the Western Front. III./JG 27 and III./JG 77 were the first fighter units to upgrade to the new version of the 109. For a number of months, they were the only Jagdgruppe that had Bf 109 K-4 machines in large numbers. In smaller numbers, the K-4 version appeared in II./JG 2, III./JG 3, I., III. and IV./JG 4, II./JG 11, III./JG 26, I. and II./JG 27, II./JG 53 and I./JG 77. These units simultaneously used the Messerschmitt Bf 109 G, often even in several versions. However, few of these were placed under Luftflotte Reich command for the defense of key targets against four-engine bomber formations. Most of them were tasked with combating Allied ground attackers and medium bombers.

The new year of 1945 brought heavy losses to the Germans in the Operation Bodenplatte, both in terms of equipment and in the ranks of experienced veterans. Another blow to the Luftwaffe was the Soviet Vistula-Oder operation,



Photo: JaPo
Bf 109 K-4 WNr. 332 455 with late style of camouflage on upper surfaces in München-Schleissheim, May 1945. Note the spinner in factory paint without white spiral.



Photo: SDASM
Allied soldiers in Wunstorf in second half of 1945 in front of Bf 109 K-4 WNr. 332 700. The machine shows late style camouflage and simplified crosses on lower surfaces of the wing. In the background is visible WNr. 330 255 "Black chevron" of Stab III./JG 27 with early style camouflage and black/white crosses on lower surfaces.

was already an established phenomenon. The cannon carriage, including the mounting points in the fuselage, was therefore designed to allow an alternative installation of the proven MG 151/20 cannon available in sufficient quantity. Despite the deteriorating supply situation and the pressure of the Allied bombing offensive on production and logistics, the production of the Bf 109 K-4 began more or less successfully during the autumn and winter of 1944, and continued into early 1945, together with the production of other types of fighter aircraft, mainly the Fw 190 of various versions and especially the Me 262. Production continued until March 1945, when under the pressure of Allied advances on all fronts, relentless bombing and the intensifying chaos that it brought with it, the disruption and general lack of material and food, it gradually ground to a stop. The deliveries of fighter jets to combat units continued during April, both from OKL warehouses and from repair companies. It must be added that the Luftwaffe never had a shortage of aircraft during the war, until its final days. The big problem was the gradually increasing shortage of well-trained pilots from about the middle of the war and especially, in the last year, the lack of fuel. Both of these problems were related to the Allied bombing offensive, which from the beginning of 1944 concentrated on the liquidation of the fuel industry and the elimination of communication hubs. By the second half of 1944, this led to a sharp drop in fuel stocks for all armed forces as well as for industry and transport. The destruction of communication hubs, especially large railway stations, further aggravated this problem, and caused interruptions in the supply of all raw materials and semi-finished products from scattered production enterprises to factories and military repair centers, where equipment was assembled. As a result, there was

which began in mid-January 1945. The German command in the east hastily relocated a number of units, including ones equipped with Bf 109 K-4s. In the following months, K-4s also reached units deployed on the Eastern Front for many years, such as Stab, III. and IV./JG 51, or Stab, I. and III./JG 52 in Silesia. In the last weeks of fighting against the Red Army, the unique Karl version also entered service with II./JG 52 and Stab JG 6.

The only unit that had Messerschmitt Bf 109 K-4s in the Luftflotte Reich (part of the Reichsverteidigung) from the beginning of 1945 was IV./JG 300. Later, its sister unit III./JG 300 also received a few Ks. This version of the Bf 109 also entered the arsenal of bombing units converted to fighter units. These were II./KG(J) 6, II./KG(J) 27 and II./KG(J) 55. If these formations came into contact with the enemy, they usually suffered fairly significant losses.

On the Western Front, from the beginning of 1945, the Bf 109 K-4 gradually came into service with III. and IV./JG 53, while in April 1945, they already represented a significant part of their flight fleet. Rare specimens of the K-4 version also reached the night fighter unit I./NJG 11. The Bf 109 K-4 machines were also part of the equipment of the Sonderkommando Elbe, which was organized for a mass attack against formations of four-engine bombers. The pilots were supposed to crash into enemy aircraft and then take to their chutes. The unit's only deployment took place on April 7, 1945 and did not meet with significant success. One of the last aerial victories of the Luftwaffe was scored by a pilot of a Bf 109 K-4. After an emergency scramble on May 8, 1945, at 11.00 from the base at Zatec (Saatz) in Bohemia, Uffz. Eugen Maier of 14./JG 300 shot down a low-flying Soviet twin-engine aircraft, probably a Pe-2.

In Foreign Service

It is not known if the Bf 109 K-4 was used by the Royal Hungarian Air Force (MHKL) or the volunteer units of the Russian Liberation Army (ROA). However, they found their way into the air units of two other air forces that stood by Hitler's Germany.

The fighter units of the National Republican Air Force (ANR) in northern Italy were the only Axis units operating fighter aircraft on this battlefield since the autumn. These were Ilo and Ilo Gruppo Caccia, which were equipped with the Messerschmitt Bf 109 G-6, G-14 and G-10. Three Bf 109 K-4s at the end of February 1945 were received by Ilo Gr. C., specifically its 3a Squadriglia at the base at Malpensa. Another three Bf 109 K-4s were acquired in April by 6a Sqn., which belonged to Ilo Gr. C. at Maniago Airport. The third fighter unit of the ANR, Ilo Gr. C., was in the middle of organizing at the end of the war. Before the end of the war, on April 22, the ANR had only three Bf 109 K-4s in service. Two were located at staff headquarters of Ilo Gr. C. and one was with 6a Squadriglia. The remaining three machines were lost in combat with American airmen.

A little known fact is that the Bf 109K-4 entered service with the Air Force of the Independent State of Croatia (ZNDH). Even with the approaching end of the war, Germany continued to provide its Croatian ally with aircraft technology, so in February 1945, in addition to ten Bf 109 G-6, G-14 and G-10 airframes, ZNDH's fighter unit 2.ZLJ also took over four examples of the Bf 109 K-4. However, two of them were damaged on February 20 when landing in a blizzard at Lučko Airport. Another three K-4s were received during April. One of them, delivered on April 23, was hidden near Borongaj airport by supporters of Tito's army from among the ZNDH. Croatian aircraft participated in the fighting around Zagreb until May 6, 1945, and ZNDH pilots came into conflict with American and British fighters. The Bf 109 K-4 hidden at Borongaj was tested in the air in mid-May by a Yugoslav

and had the engine cowl shape characteristic of the Erla factory Bf 109 with the DB 605 D engine. Due to design differences, this variant is not included in this kit. The K-4 version from the first two production blocks (WNR. 330xxx and 331xxx) were painted in a similar manner to the Bf 109 G-14, G-14/AS and G-10 aircraft that Messerschmitt Regensburg produced in parallel with the K-4. These Bf 109 K-4s are highly likely to have been finished in an RLM 76, 75 and 74 camouflage and had light colored fuselage sides.

The other K-4 blocks (WNR. 332xxx and 333xxx) usually had a camouflage scheme with large fields of dark colors on the fuselage. From the color photographs as well as the color contrast in the black and white photographs, it is evident that a number of these aircraft continued to be camouflaged with RLM 74 and 75 on the upper surfaces.

However, there are also later series aircraft that carried colors similar to the Bf 109 K-4s from the two initial ones. One possible explanation is that the delivery of the subassembly units was delayed for final assembly, and they were allocated a higher serial number.

Bf 109 K-4 aircraft that were painted with a combination of RLM 81 and 82 on the upper surfaces were quite rare. In addition, the RLM 81 was produced in two versions. Simply put, it was a dark brown and dark green variant. The reason was that there were two formulas with a significantly different composition of raw materials, which was related to the critical state of Germany's supplies in the last year of the war.

When the new shades were introduced into production, the aircraft manufacturers were instructed to use up the stocks of old paints, and in the case of the Bf 109 K-4, these were the gray shades of RLM 74 and 75. However, the composition of these colors changed in 1944 thanks to a new formula, so that these shades were darker when compared to 1941 produced paints, for example. So one aircraft

Photo: JaPo



A late war production Bf 109 K-4 probably with RLM 81 (dark brown) and RLM 82 on fuselage on a photo from Salzburg, Austria at the end of war. Yellow markings on rudder and engine cowling were introduced by Luftflotte 4 in March 1945.



Photo: Jeffrey Ethell Collection

Original color photo of aircraft wrecks at Kaufbeuren in Germany. Far in the middle is Bf 109 K-4 "Black chevron 1" of Stab III./JG 53. Lt. Ernst-Dieter Bernhard crash landed this plane on April 19, 1945. Note the RLM 74 and 75 colors on fuselage, vertical bar of III. Gruppe as well as black identification band of JG 53. On the left is Bf 109 G-10 "Yellow 2" of KG(J) 27 with white/green checkerboard band.

pilot, Lt. Boris Cijan. According to his memoirs, the machine was marked with red stars. Apparently another pilot made an emergency landing with the same plane a few days later. There are no records of further post-war use of the Bf 109 K-4 in the Yugoslav Air Force.

Bf 109K-4 Schemes

The coloring of the Bf 109 K-4 is among the most popular topics among modelers and aviation researchers who deal with the history of the Luftwaffe. Unfortunately, documentation specifying the fields of camouflage colors and the identification of their shades as they pertain to the Bf 109 K-4 has not survived. When reconstructing the coloring of individual machines, it is therefore necessary to start from black-and-white and limited color photographs and also take into consideration the situation the manufacturer and various subcontractors found themselves in at the time.

The vast majority of Bf 109 K-4s were manufactured by Messerschmitt GmbH based in Regensburg. The production of structural assemblies took place at three plants, and their final assembly was carried out in three other locations. Subassemblies were painted with camouflage colors at the subcontractor level, so that a given aircraft could have, for example, a wing colored differently than the fuselage after final assembly.

So far, only one aircraft is known from the small series of Bf 109 K-4 aircraft produced at the Erla factory from the spring of 1945 (WNR. 570xxx). One documented piece probably carried a dark green camouflage on all surfaces

could have a fuselage painted with lighter colors made with the older formulas and tail surfaces from another subcontractor could be painted with the darker 1944 shades. RLM 81 and 82 colors were allowed as older paint stocks were used up in combination with other shades. For example, there could have been aircraft painted RLM 81 and 75.

Paint manufacturers worked under extremely complicated conditions, both in terms of logistics and the quality of raw materials. The shades of colors from their production could therefore differ even for the same manufacturer. This can also explain the different variants of the grey-blue color, which is documented in photographs and remains of German aircraft from the end of the war. As a cost saving measure over the final year of the war, paint was gradually omitted on the lower surfaces, aside from the key components that needed to be protected for example the canvas-covered surfaces continued to be painted with camouflage paint.

When preparing our color schemes, we worked closely with Mr. Tomáš Poruba (JaPo Publishing), and we incorporated the latest findings from research of the development of the Bf 109 K-4 color schemes. When reconstructing the coloring of individual aircraft, we took into account not only their photos, but also photos of other machines of the relevant production series, the approximate time of their production and the customs prevailing at the time in production, relevant regulations and other known facts. We are aware that there are also other interpretations of the coloring of the planes depicted by us. You are certainly free to follow your own research and findings if our presentation does not quite suit you.

ATTENTION



UPOZORNĚNÍ



ACHTUNG



ATTENTION



注意



Carefully read instruction sheet before assembling. When you use glue or paint, do not use near open flame and use in well ventilated room. Keep out of reach of small children. Children must not be allowed to suck any part, or pull vinyl bag over the head.



Před započatím stavby si pečlivě prostudujte stavební návod. Při používání barev a lepidel pracujte v dobře větrané místnosti. Lepidla ani barvy nepoužívejte v blízkosti otevřeného ohně. Model není určen malým dětem, mohlo by dojít k požití drobných dílů.

INSTRUCTION SIGNS * INSTR. SYMBOLS * INSTRUKTION SINNBILDEN * SYMBOLES * 記号の説明

OPTIONAL
VOLBABEND
OHNOUTSAND
BROUSITOPEN HOLE
VYVRTAT OTVORSYMETRICAL ASSEMBLY
SYMETRICKÁ MONTÁŽREMOVE
ODŘÍZNOUTREVERSE SIDE
OTOČITAPPLY EDUARD MASK
AND PAINT
POUŽIT EDUARD MASK
NABARVITPLEASE CHECK THE LATEST VERSION OF THE INSTRUCTIONS ON www.eduard.com

PARTS



DÍLY



TEILE

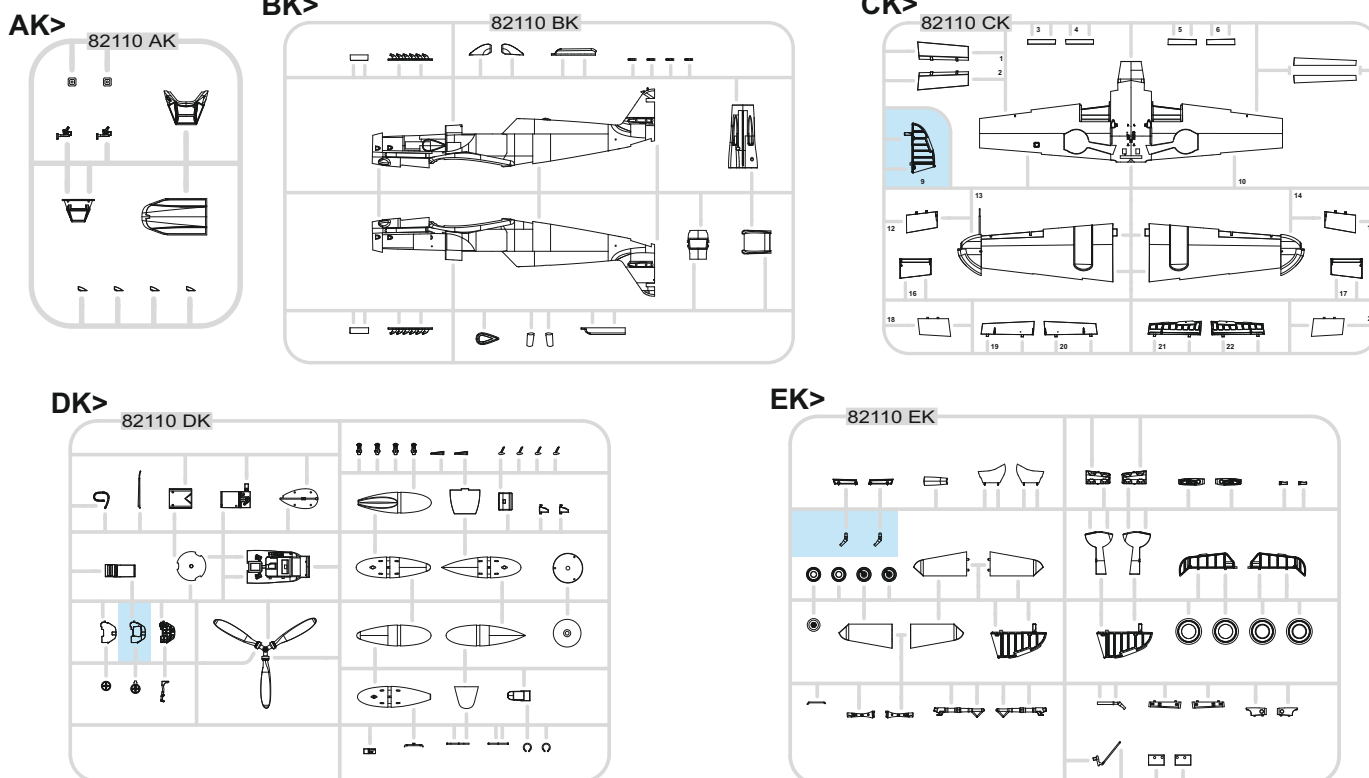


PIÈCES

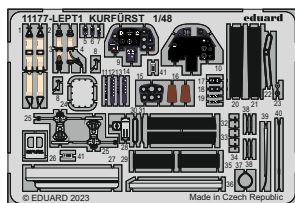
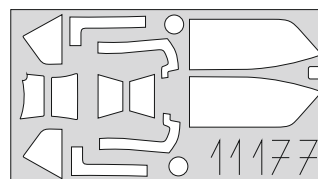


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PLASTIC PARTS



PE - PHOTO ETCHED DETAIL PARTS

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MASK

-Parts not for use. -Teile werden nicht verwendet. -Pièces à ne pas utiliser. -Tyto díly nepoužívejte při stavbě. - 使用しない部品

COLOURS



BARVY



FARBEN



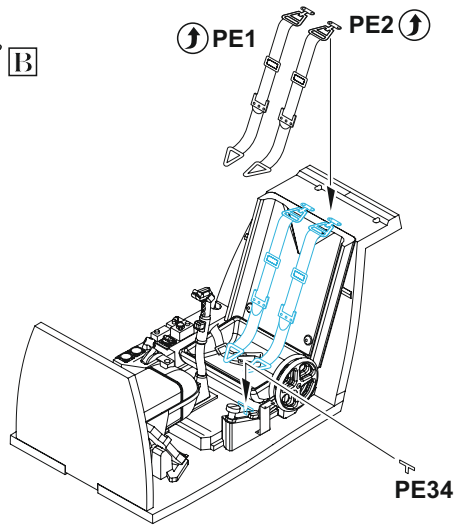
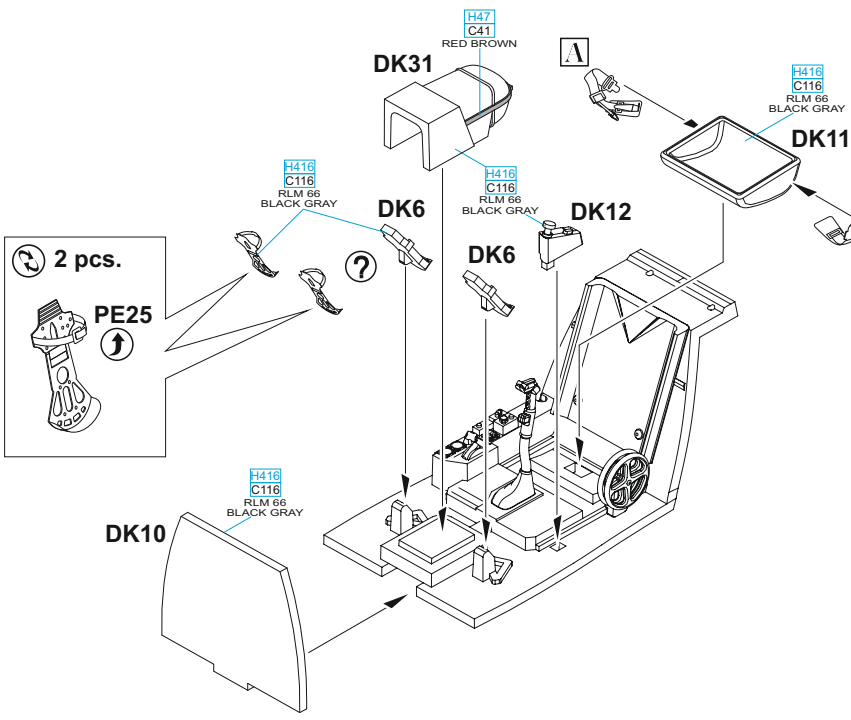
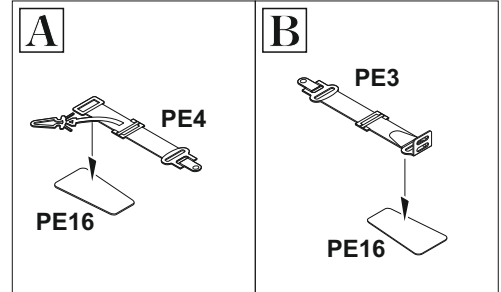
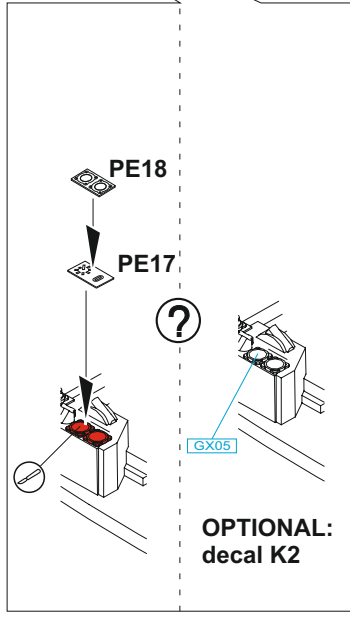
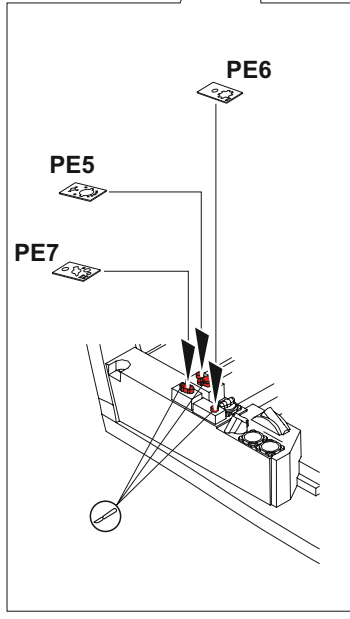
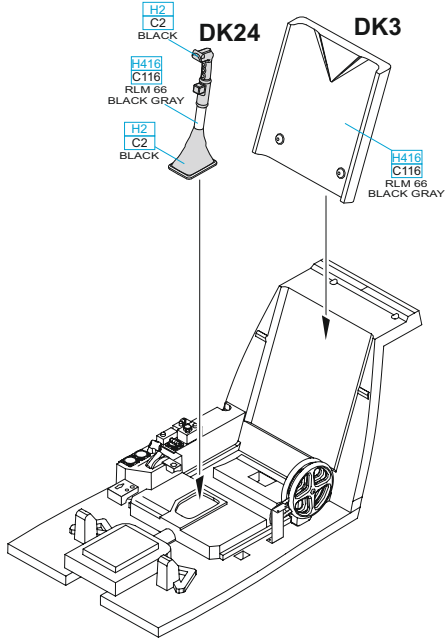
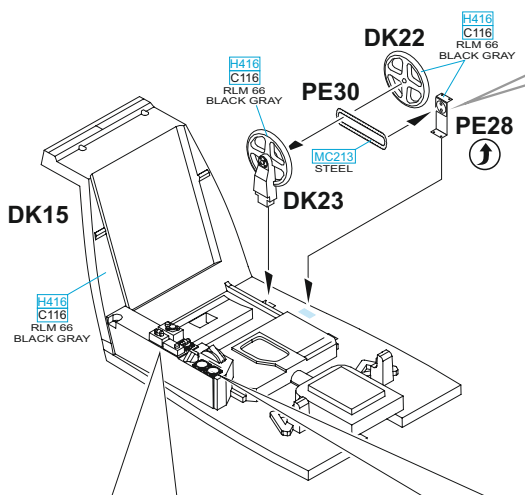
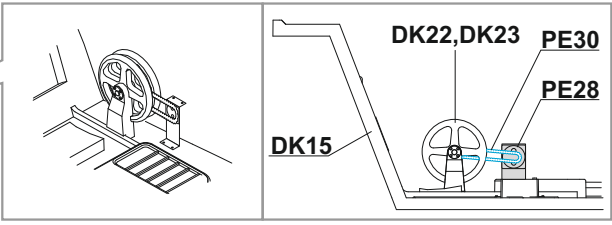
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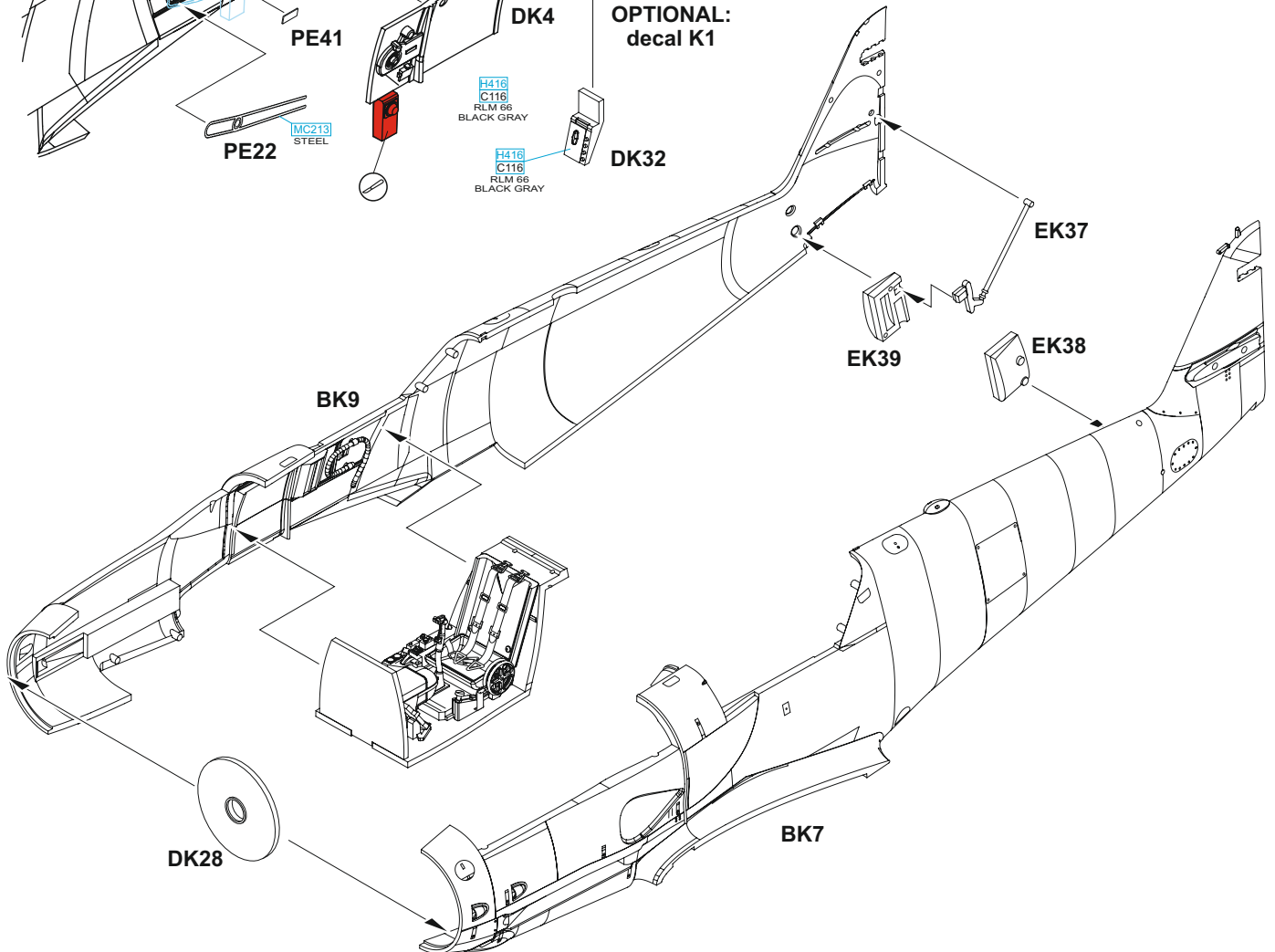
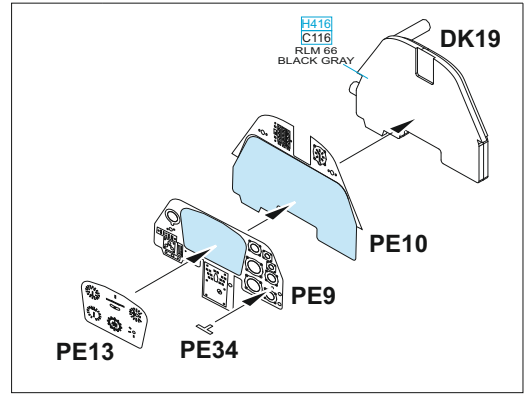
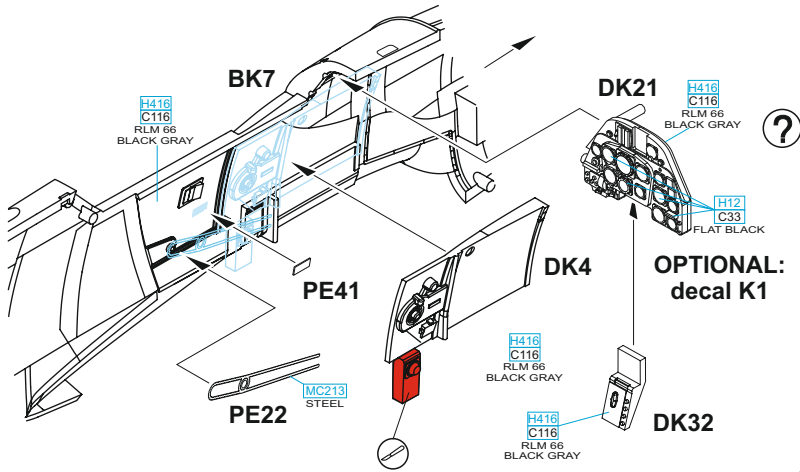
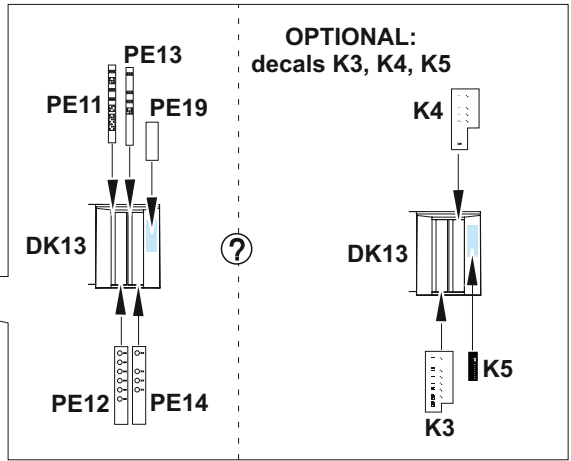
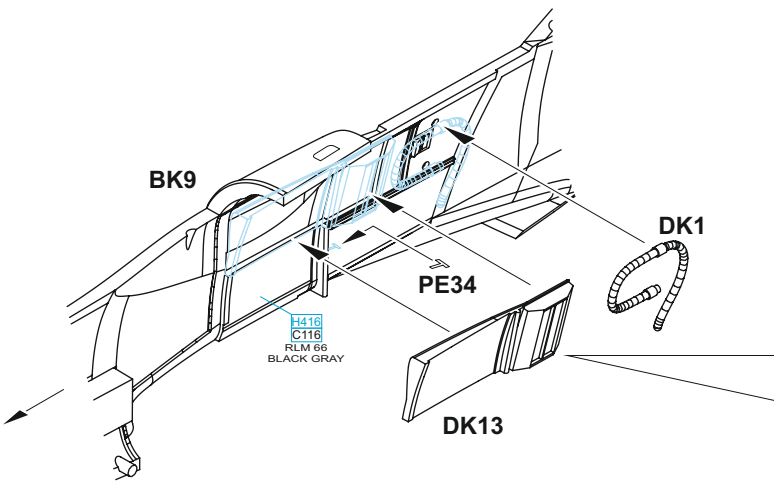


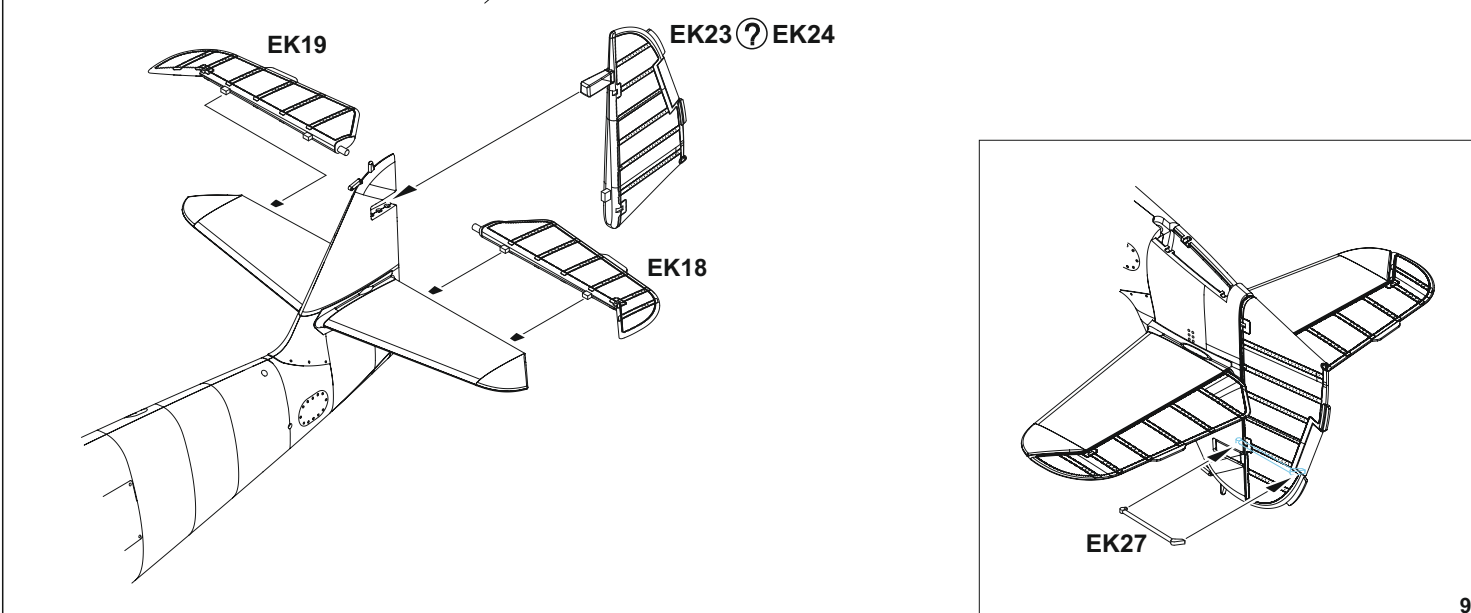
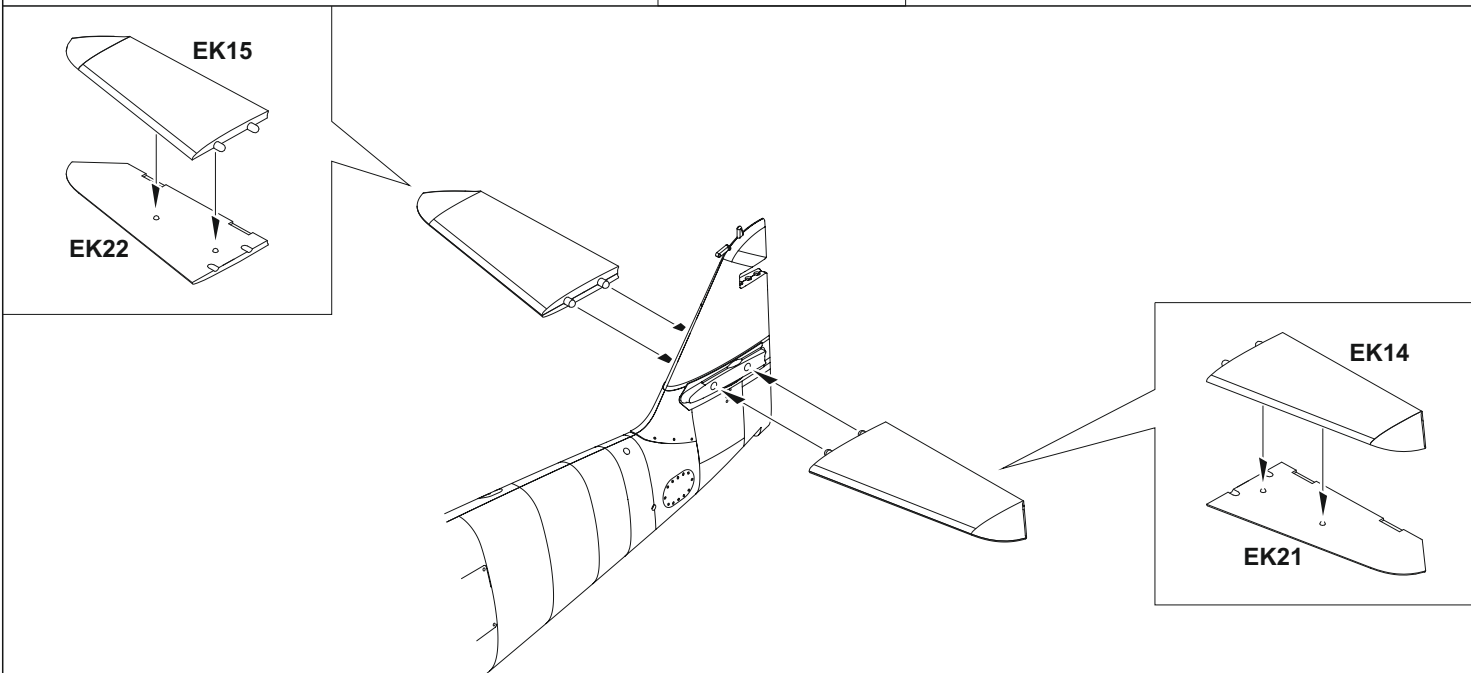
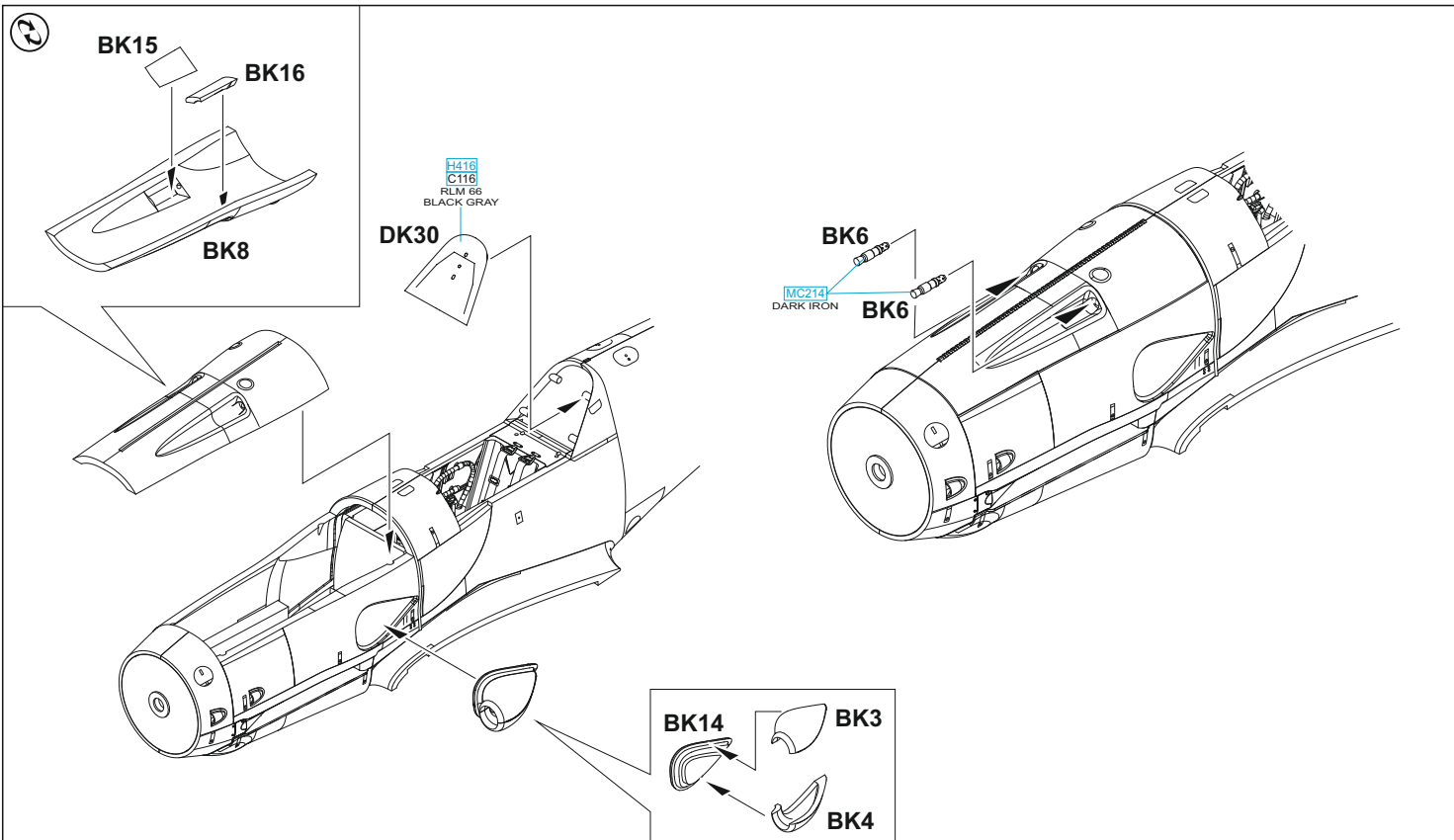
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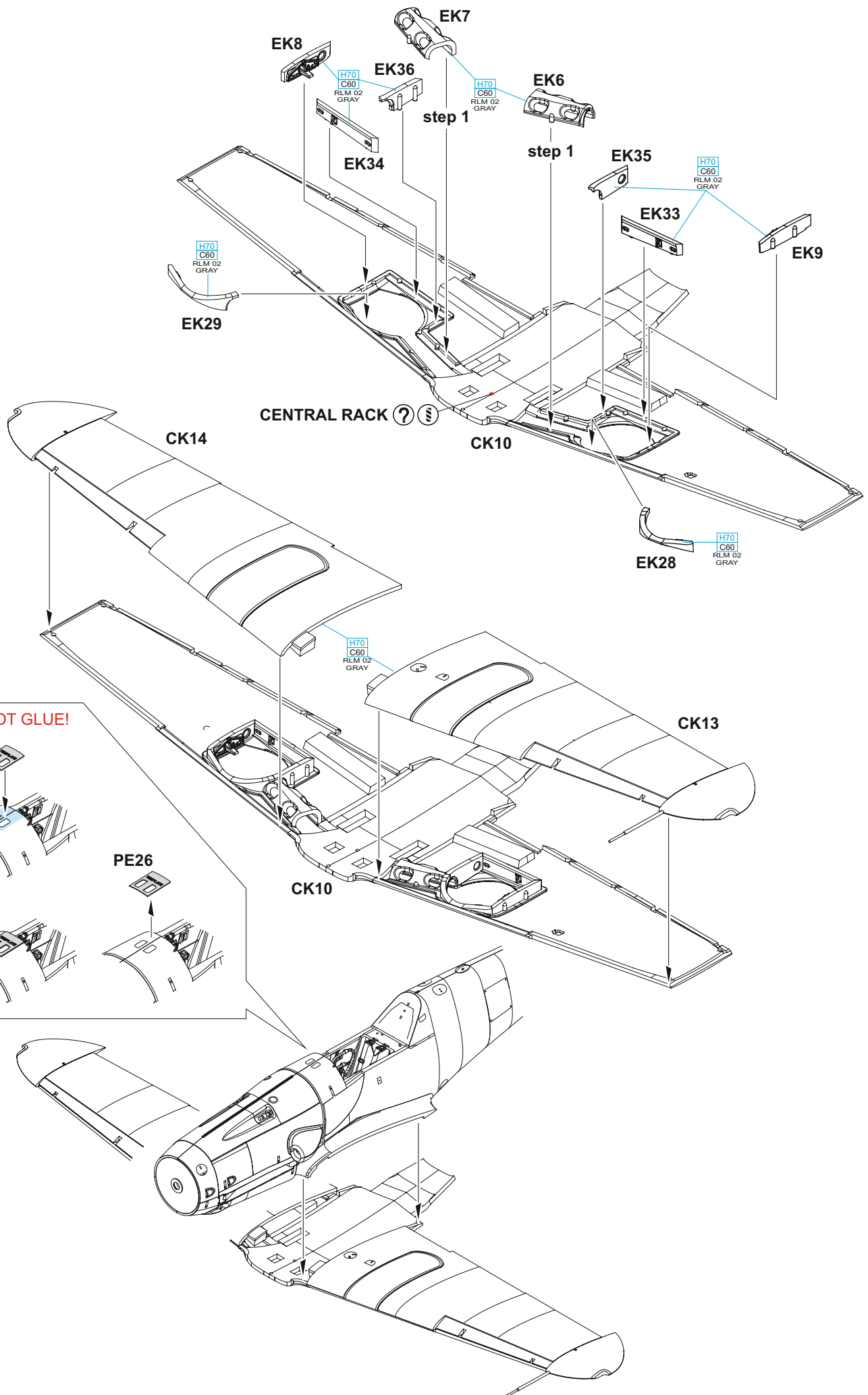
GSI Creos (GUNZE)		
AQUEOUS	Mr.COLOR	
H2	C2	BLACK
H8	C8	SILVER
H11	C62	FLAT WHITE
H12	C33	FLAT BLACK
H47	C41	RED BROWN
H65	C18	RLM70 BLACK GREEN
H68	C36	RLM74 DARK GRAY
H69	C37	RLM75 GRAY
H70	C60	RLM02 GRAY
H74	C368	SKY
H77	C137	TIRE BLACK
H90	C47	CLEAR RED
H94	C138	CLEAR GREEN
H319	C319	LIGHT GREEN
H324	C324	LIGHT GRAY

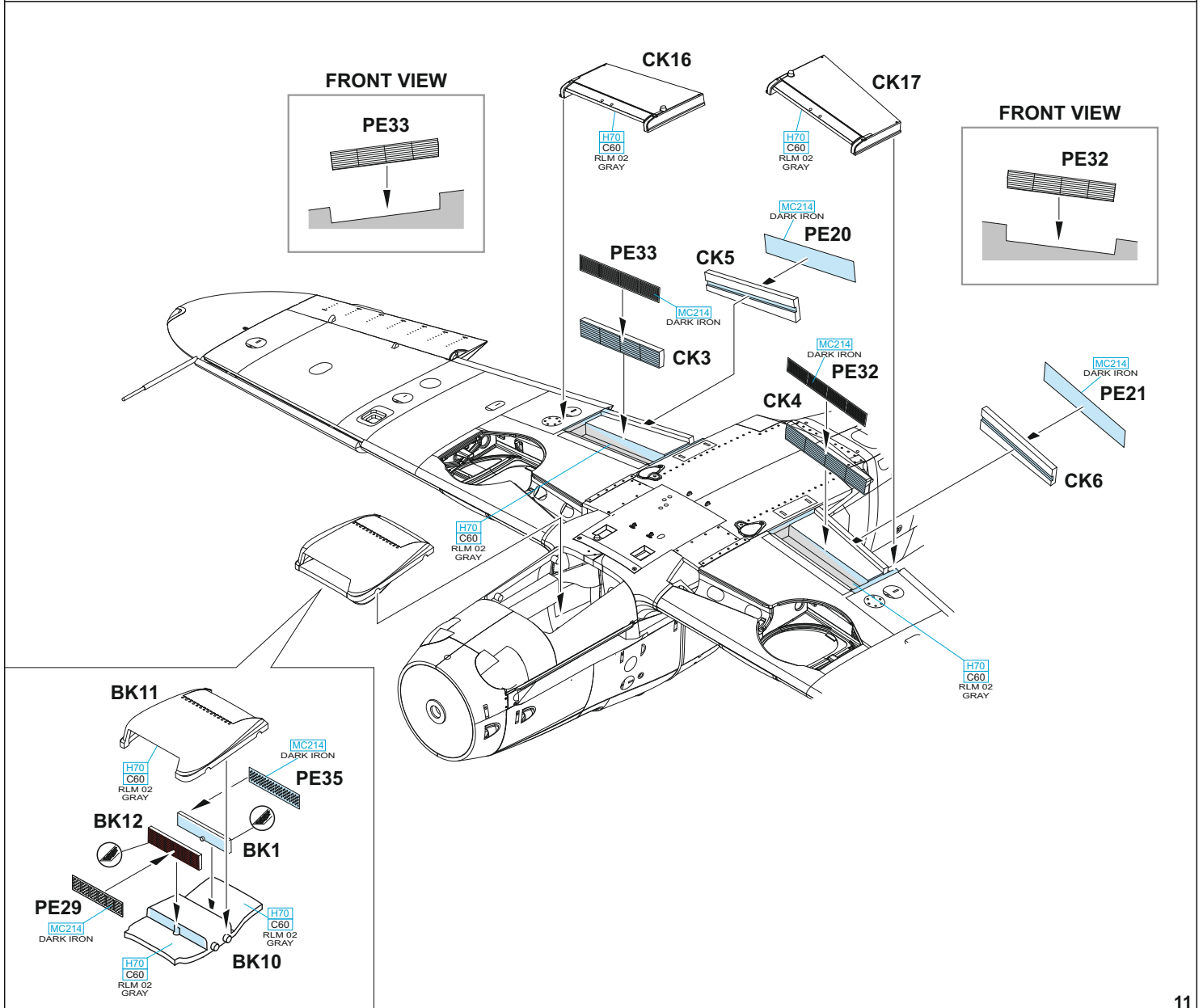
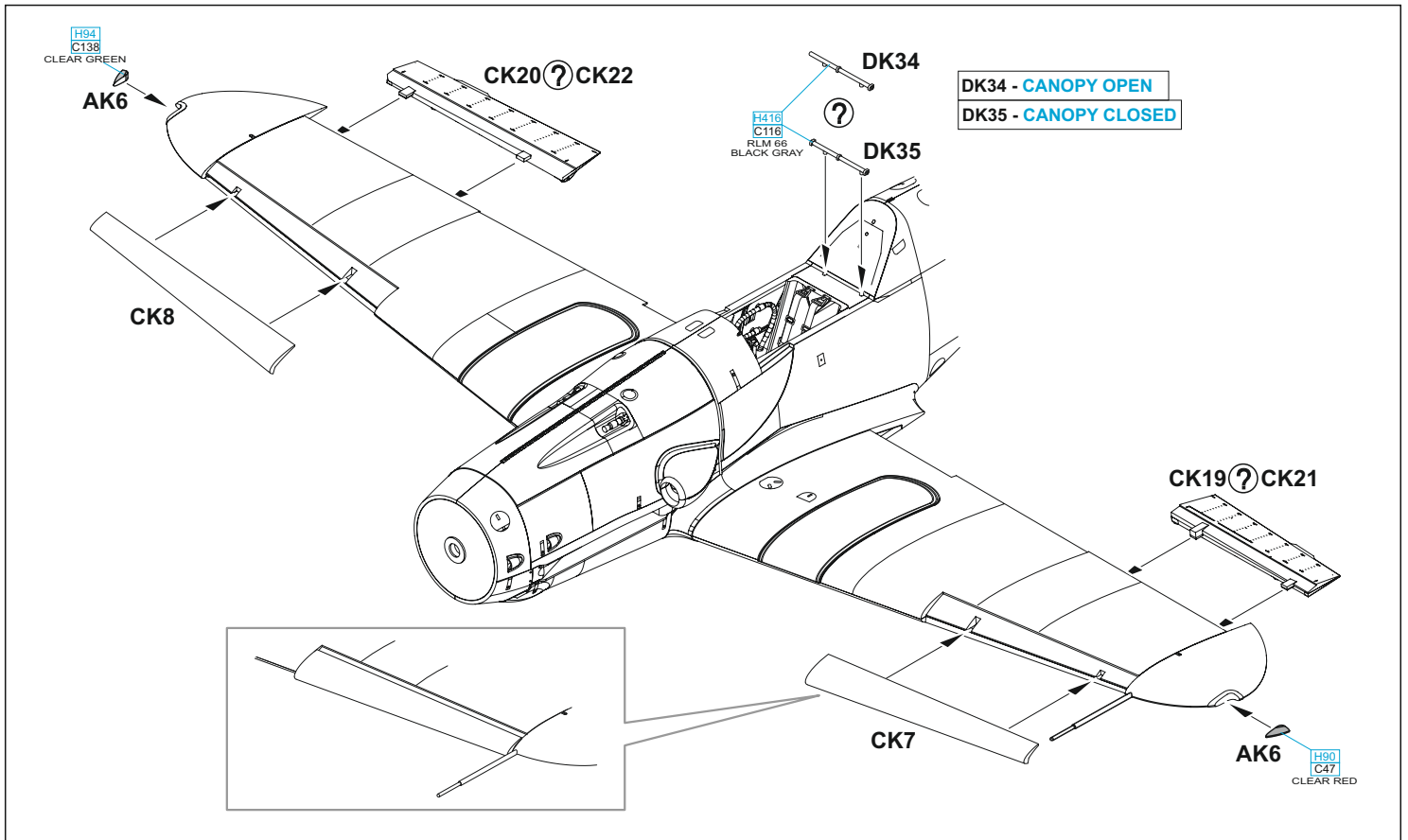
GSI Creos (GUNZE)		
AQUEOUS	Mr.COLOR	
H413	C113	RLM04 YELLOW
H414	C114	RLM23 RED
H416	C116	RLM66 BLACK GRAY
H417	C117	RLM76 LIGHT BLUE
H421	C121	RLM81 BROWN VIOLET
H422	C122	RLM82 LIGHT GREEN
H423	C123	RLM83 DARK GREEN
Mr.METAL COLOR		
MC213		STEEL
MC214		DARK IRON
Mr.COLOR SUPER METALLIC		
SM201		SUPER CHROME
Mr.COLOR GX		
GX05		SUSIE BLUE



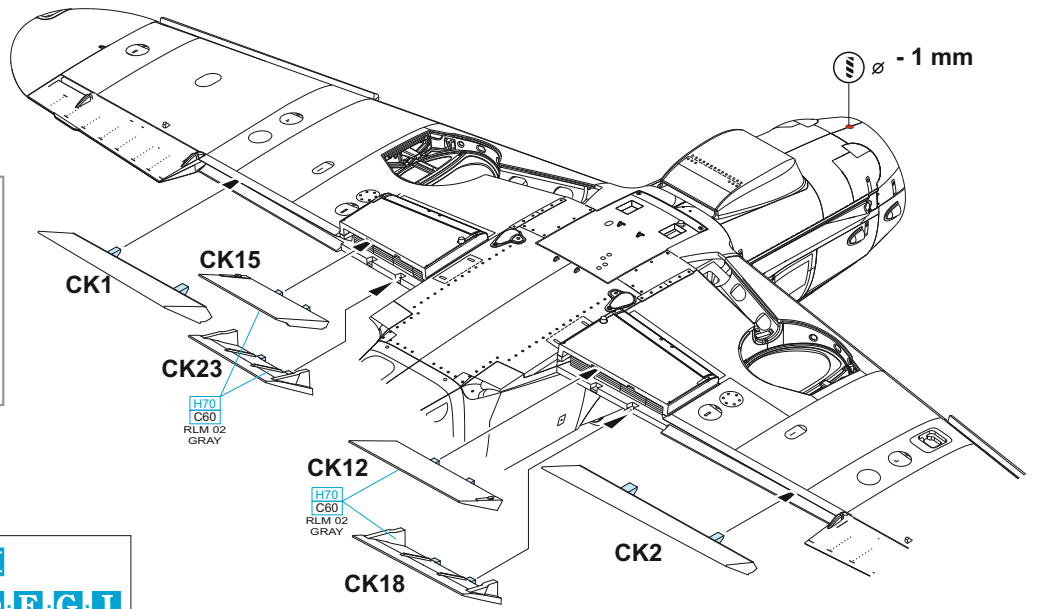
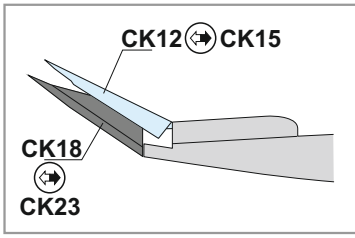




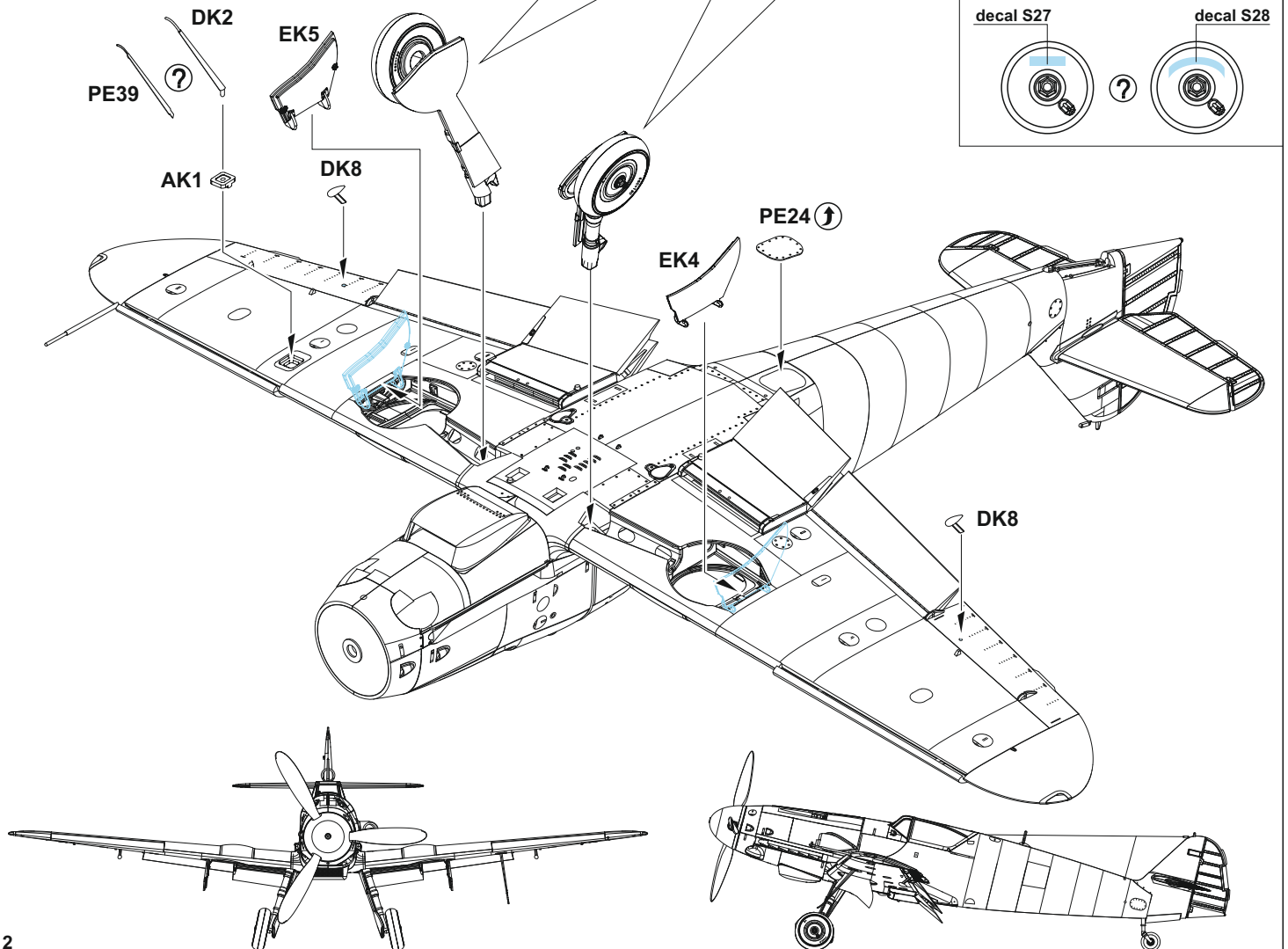
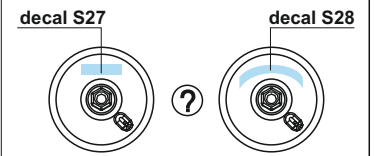
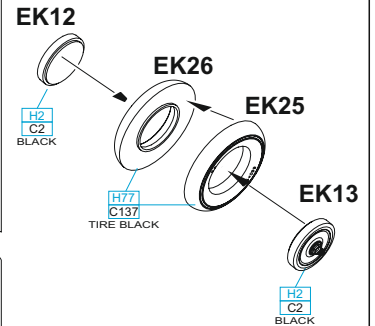
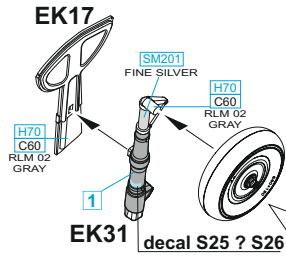
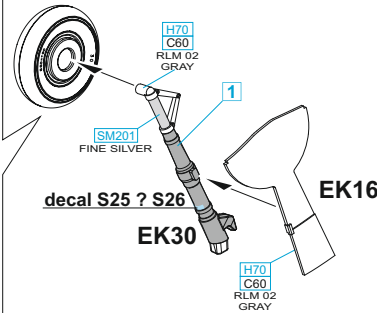
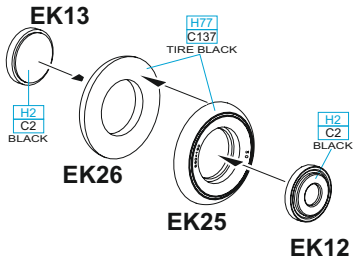


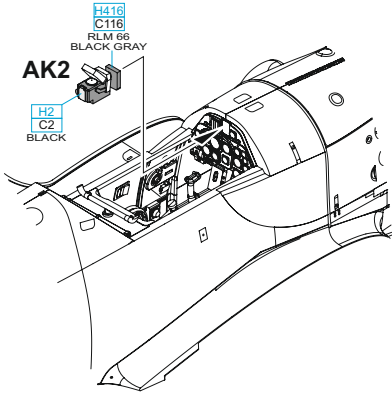
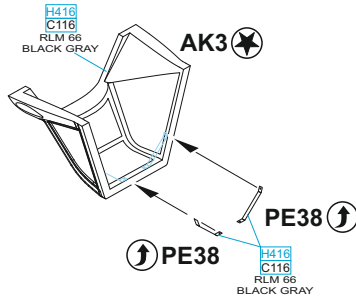
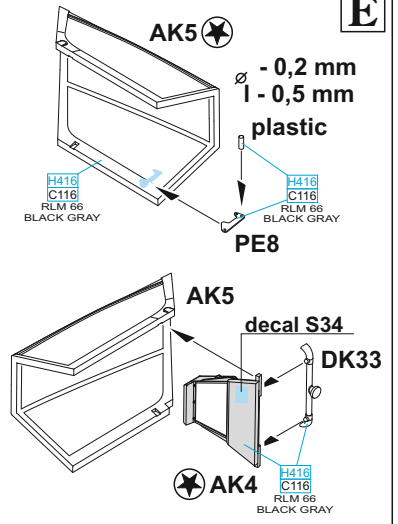


CORRECT POSITION OF RADIATOR FLAPS

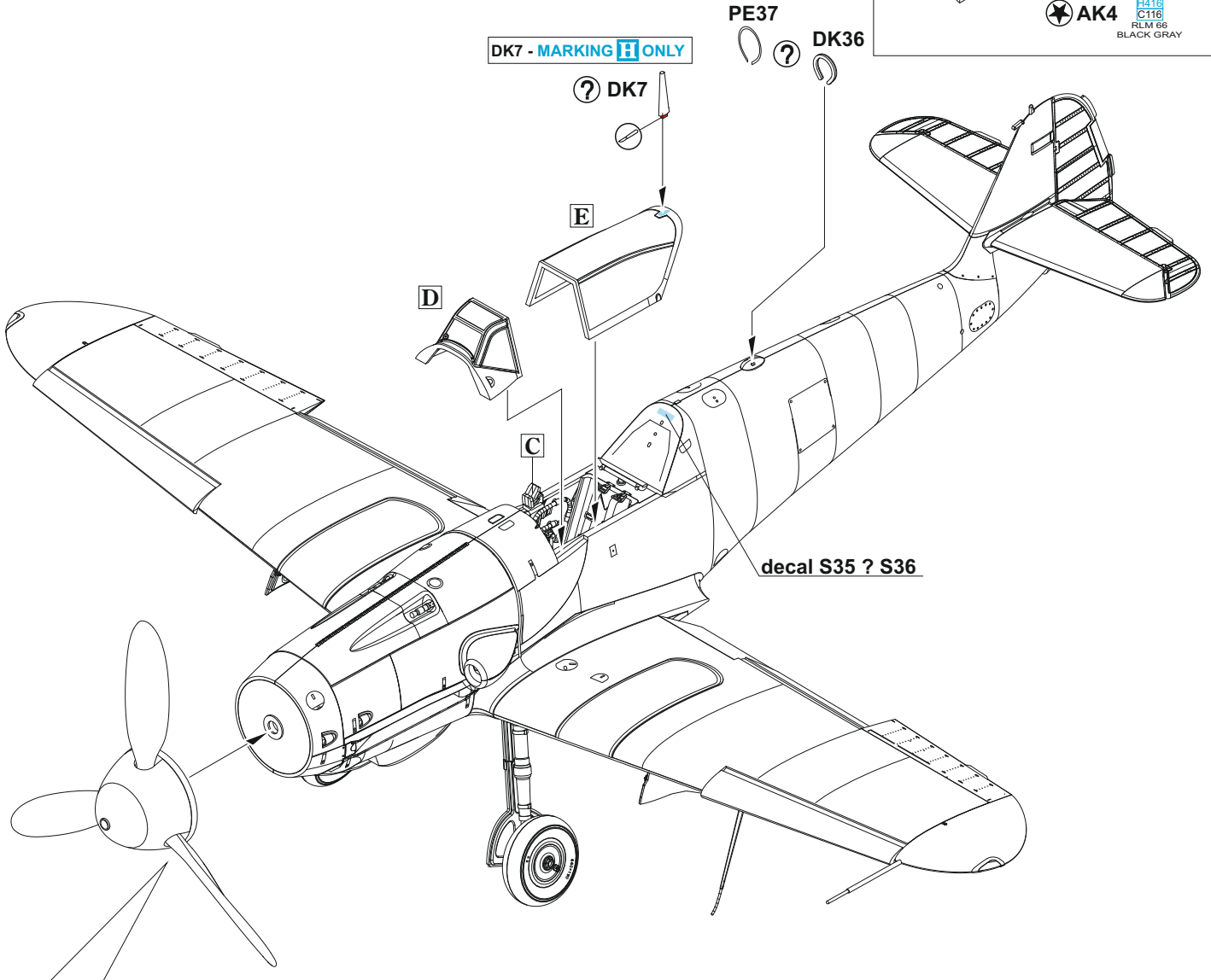


- 1** =
- H414 - MARKINGS **A;E;H**
 - C114 RLM 23 RED
 - H418 - MARKINGS **B;C;D;F;G;I**
 - C118 RLM 86 BLACK GRAY

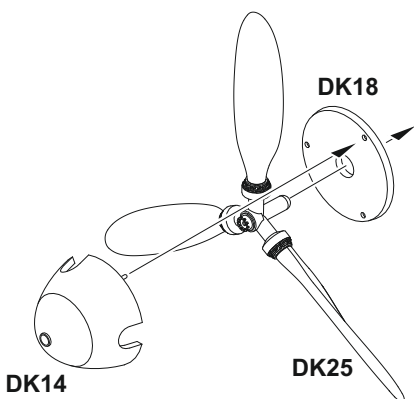
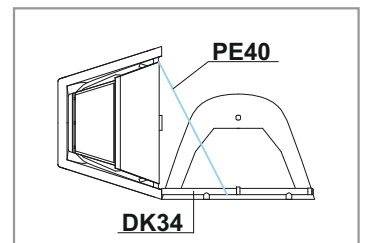
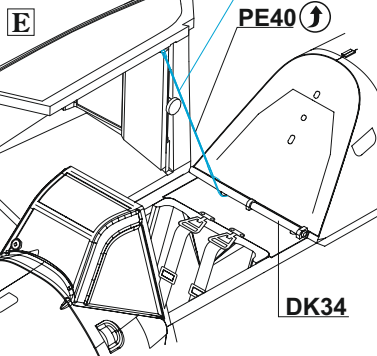


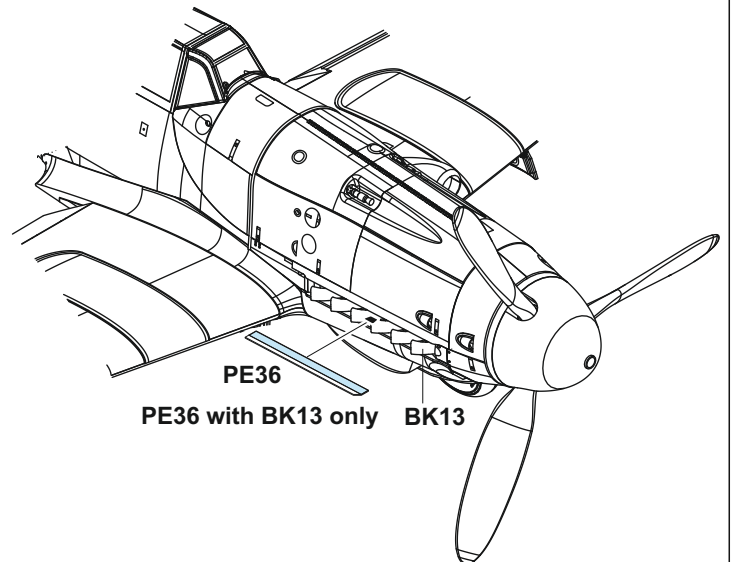
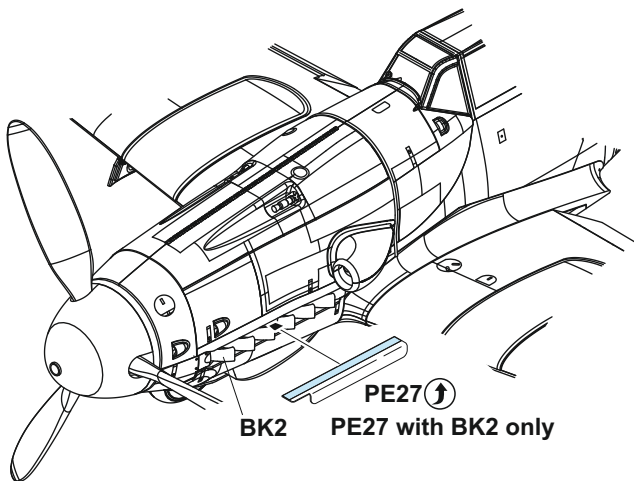
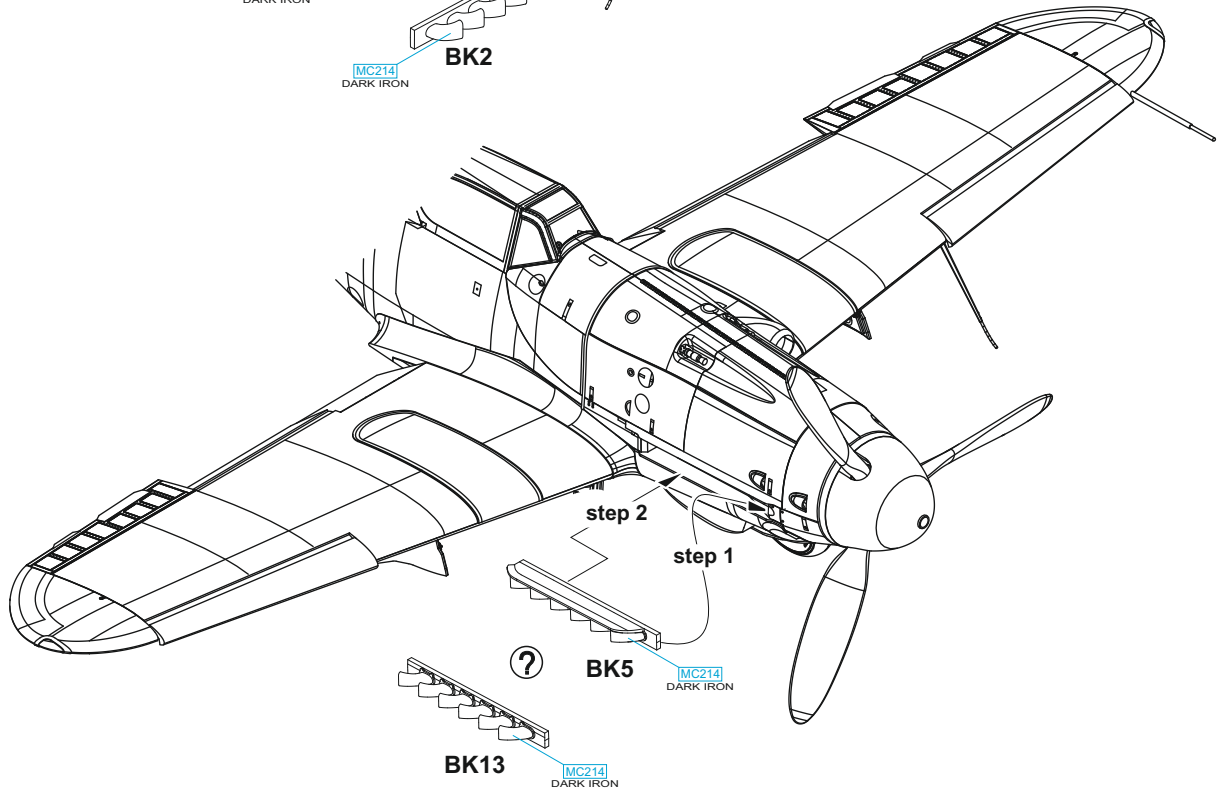
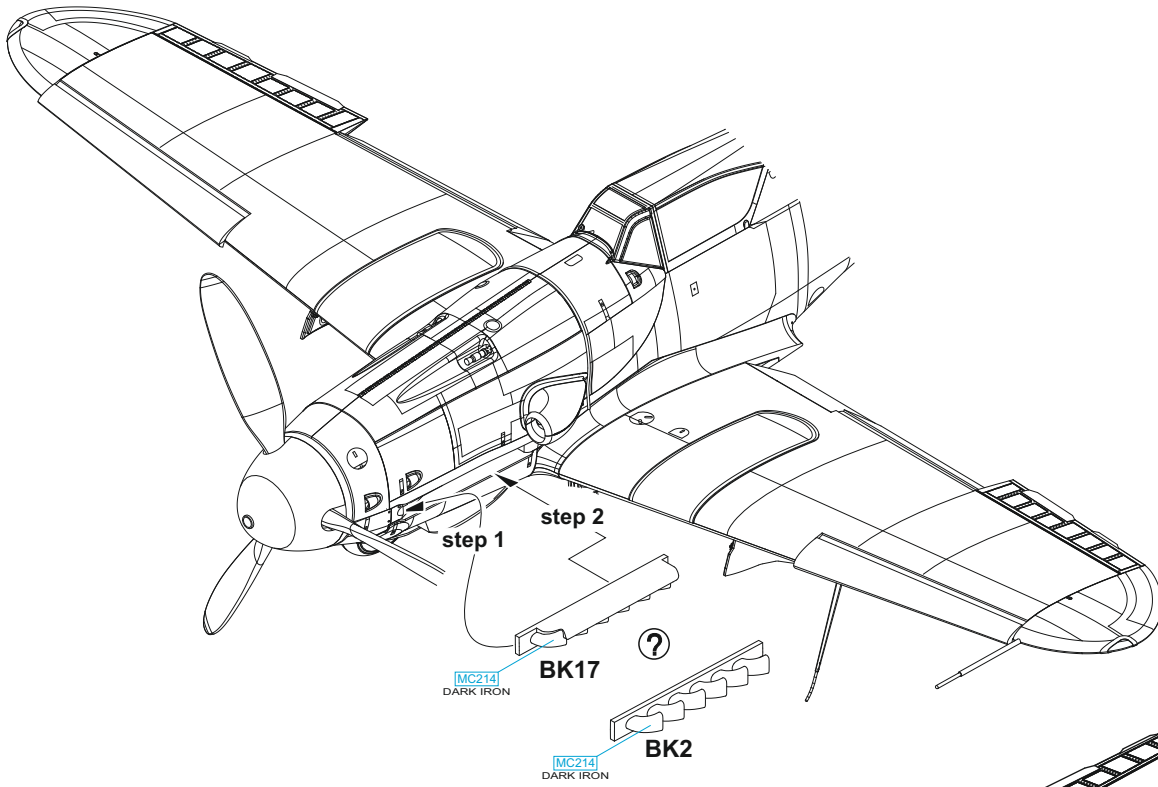
C**D****E****DK7 - MARKING E ONLY**

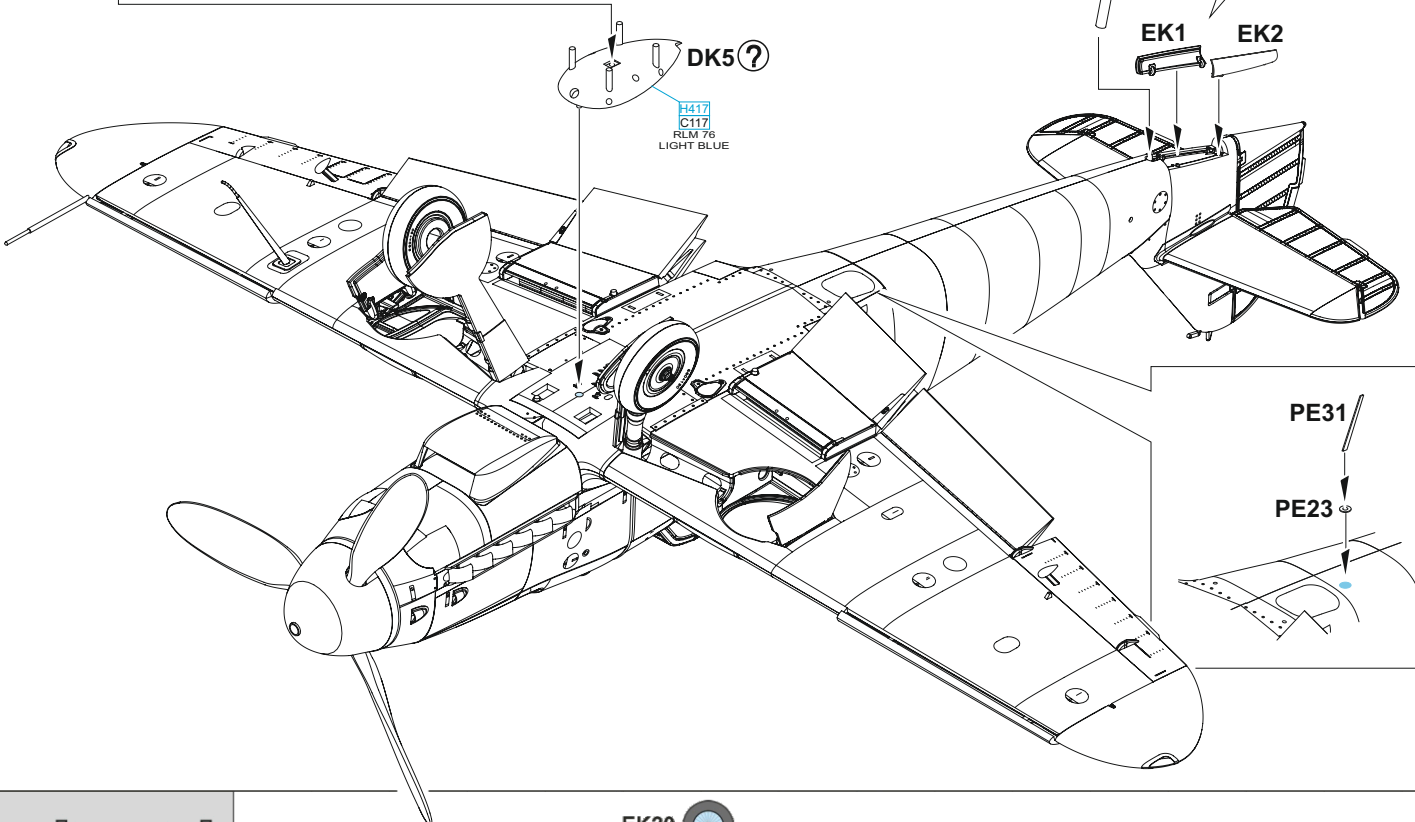
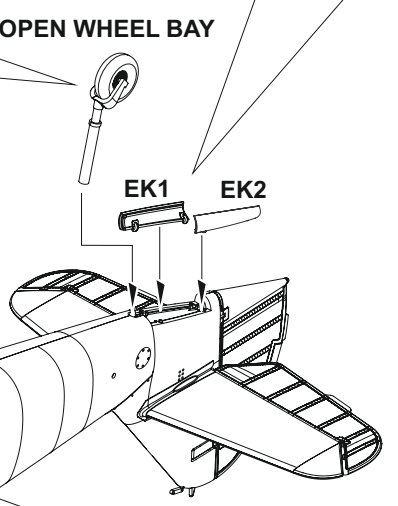
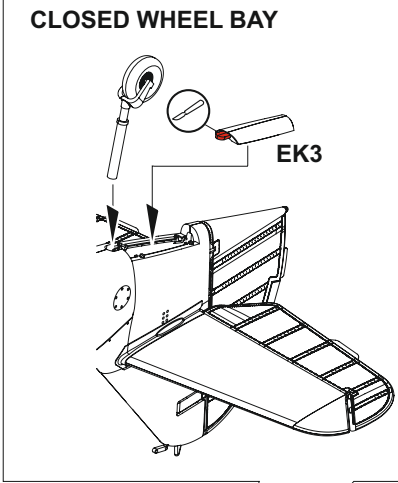
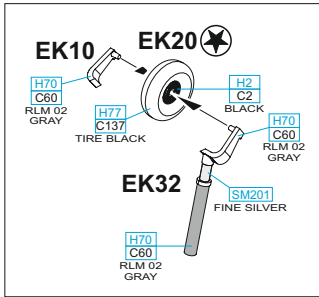
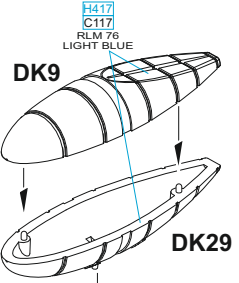
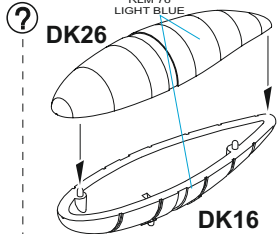
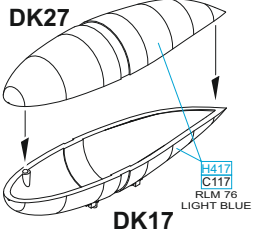
PE37 ? DK36

**OPEN CANOPY**

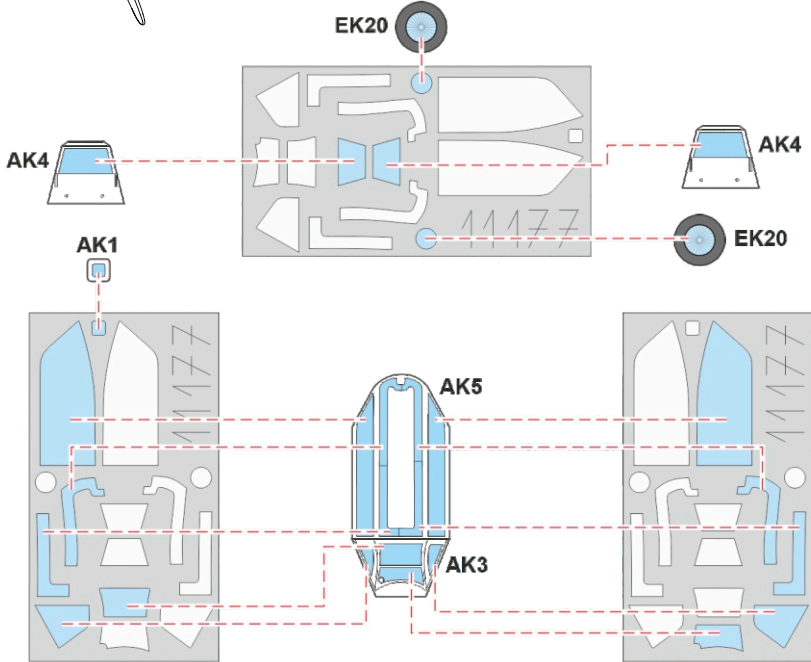
H416 C116 RLM 66 BLACK GRAY





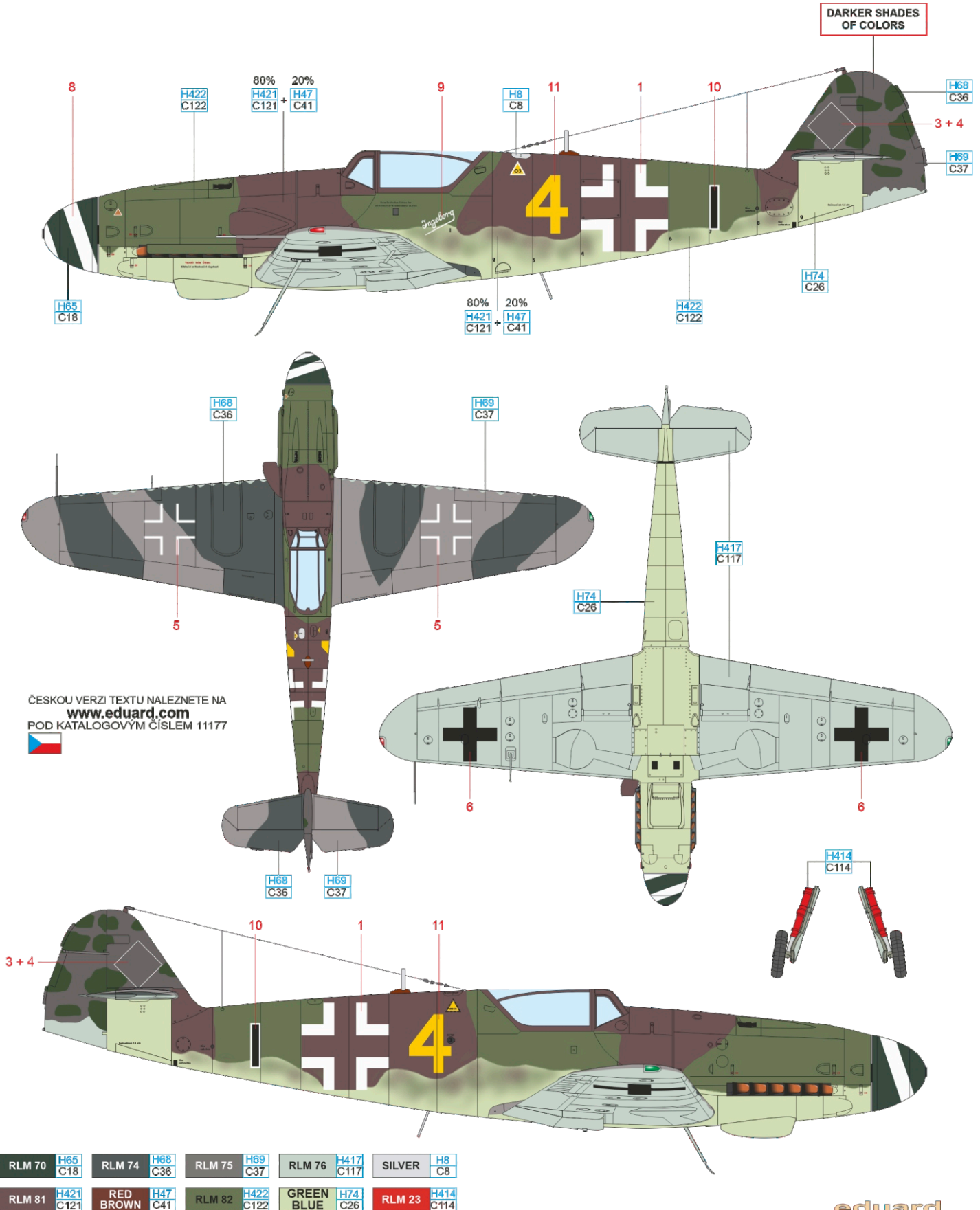


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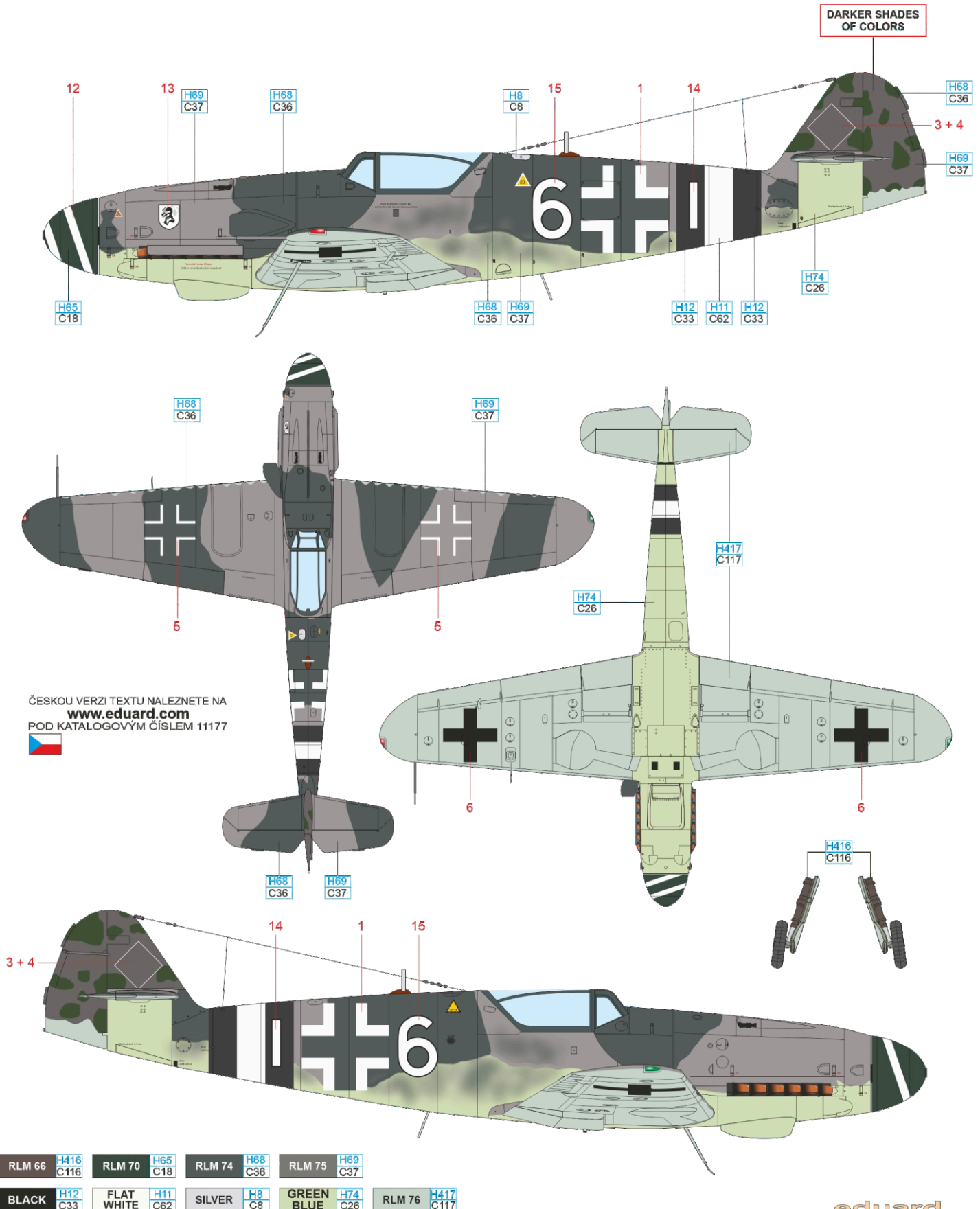
A Fw. Hans Strebel, 11./JG 3, Franzfelde airfield near Pasewalk, Germany, March 1945

Hans Strebel originally served with 9./JG 3 and achieved his second victory during Operation Bodenplatte. In early 1945 he was transferred to 11./JG 3, which was also part of III./JG 3 Udet. From the end of January 1945, this unit was deployed in combat against the Red Army and by the end of the war had achieved at least 80 victories. Its missions included also attacking supply columns or escorting anti-tank Ju 87s. The last commander of 11./JG 3 was Lt. Rudolf Escherich, who originally served on He 177s with KG 1. In mid-April, 14 pilots of III./JG 3 volunteered for suicide deployment as part of Operation Freiheit. These were attacks by crashing into bridges over the Oder River. Their suicide action scheduled on April 16 ended in failure and the formation under Escherich's command lost six airmen. The C3 label on the fuel tank indicates engine that required 100-octane fuel. At the end of the war, machine with same design of fuselage number was photographed by a Soviet reporter at Finow airfield. Fuselage was probably painted in RLM 81 (dark brown variant) and RLM 82 with yellow-grey version of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.



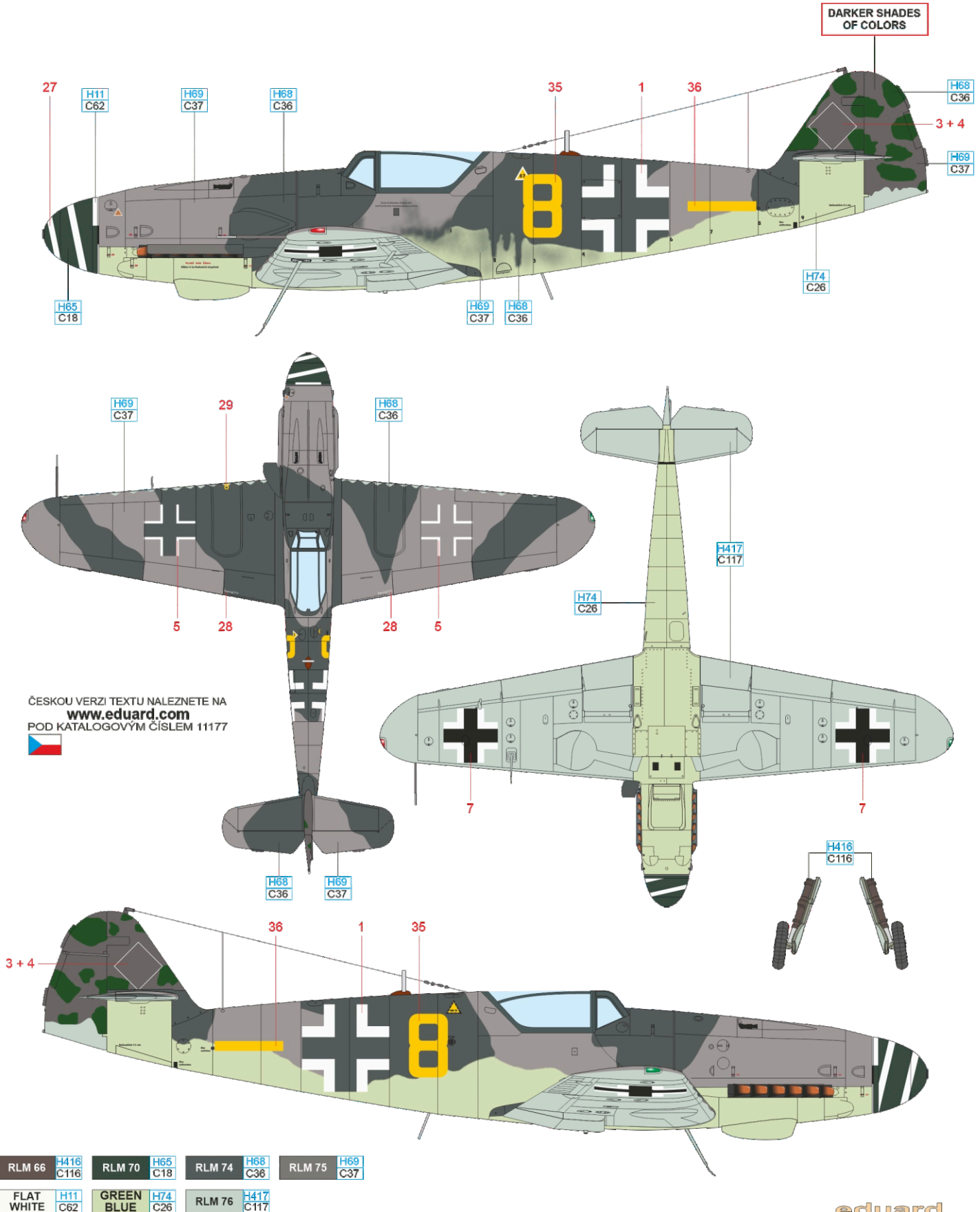
B 9./JG 4, Flensburg airfield, Germany, May 1945

On the cowlings is painted the emblem of JG 4 with a knight's helmet. The machine probably belonged to 9. Staffel of III./JG 4. It is possible that its pilot was Fw. Hans Braun, who used the same marked aircraft in late 1944. The Messerschmitt Bf 109K-4s were received by III./JG 4 in October 1944 and used along with the G-14 and G-10 versions. At that time, temporary commander of 9./JG 4 was Lt. Hans Klaffenbach (21 victories), who briefly represented Hptm. Johannes Kaufmann (10 v.). Hans Klaffenbach became commander of JaboG 32 with F-104s in 1964 and led it for eight years. In 1997 he was one of the most prominent guests at the opening of the Museum of the Air Battle over the Ore Mountains in Czech Republic, in which he took part on September 11, 1944. Kaufmann led his unit from the end of January 1945 in battles against the Red Army, and on several occasions his unit escorted airmen in suicide attacks on bridges on the Oder River. His daughter was the famous German actress Christina Kaufmann. Fuselage was probably painted in RLM 74 and RLM 75 with yellow-grey version of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.



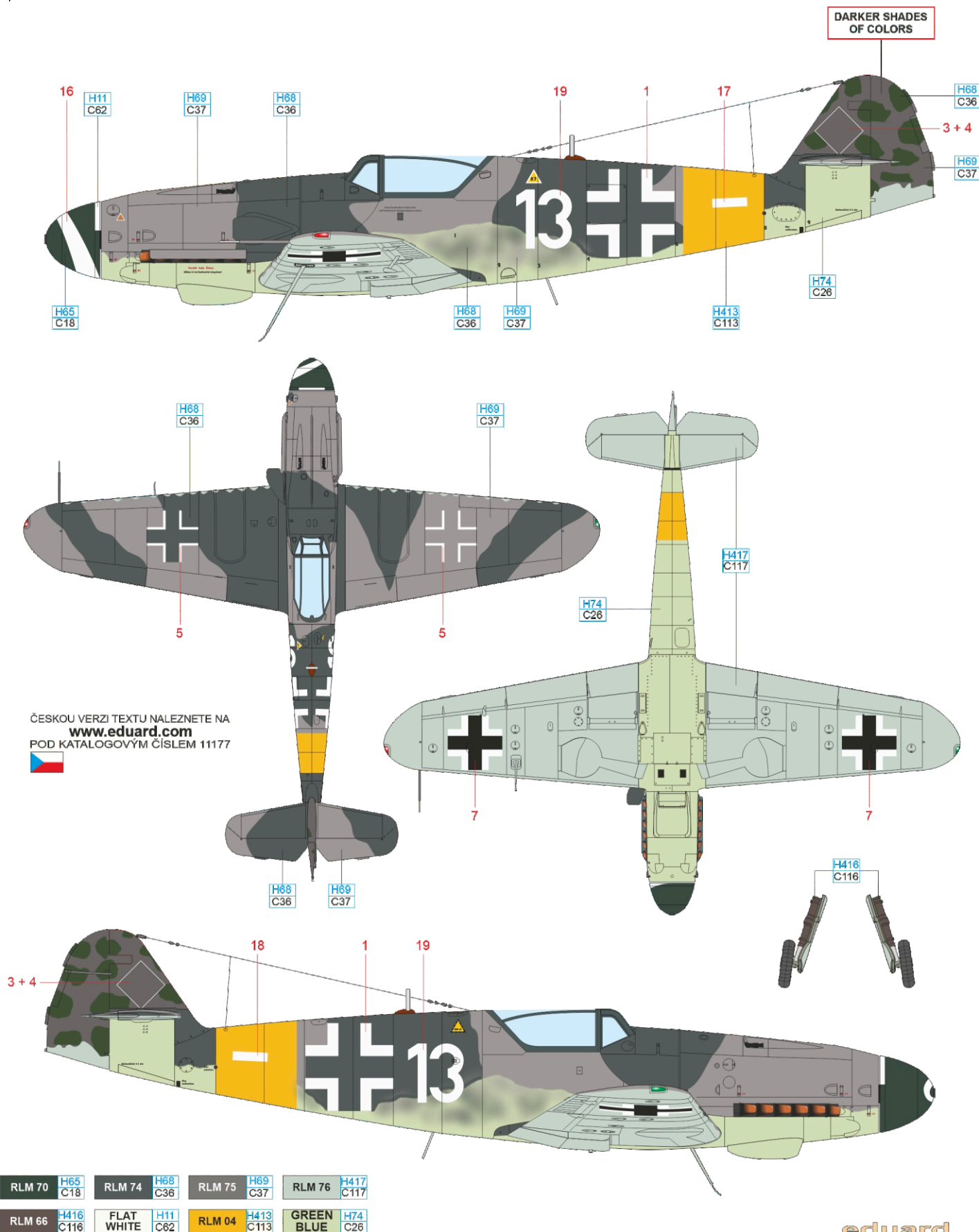
C 6./KG(J) 6, Klecany airfield, Protectorate of Bohemia and Moravia, May 1945

This aircraft, probably produced in the 332xxx series, found at the end of the war, bore signs of damage probably caused by an American air raid. KG(J) 6 was being retrained from bombers to fighter aircraft at bases in and around Prague. Eventually it was to be armed with Me 262 jets, but the retraining was done on single-engine fighters. The I. and II. Gruppe were equipped with Messerschmitt Bf 109G and K. For most of the time II./KG(J) 6 was undergoing retraining for fighters, its commander was Hptm. Hans-Joachim Faulhaber, who had previously served with KG 77 and was awarded the Knight's Cross. In 1942 he escaped night fighter over England and returned with a damaged plane. Faulhaber was replaced at the end of March 1945 by Hptm. Wilhelm Kunze, who had seen combat on the Western Front with KG 2 and was also shot down by a British fighter, in December 1943, during a training flight near Eindhoven. His unit was defeated in aerial combat on March 31, 1945, against Mustangs from the 309th FS, 31st FG. Fuselage was probably painted in RLM 74 and RLM 75 with yellow-grey version of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.



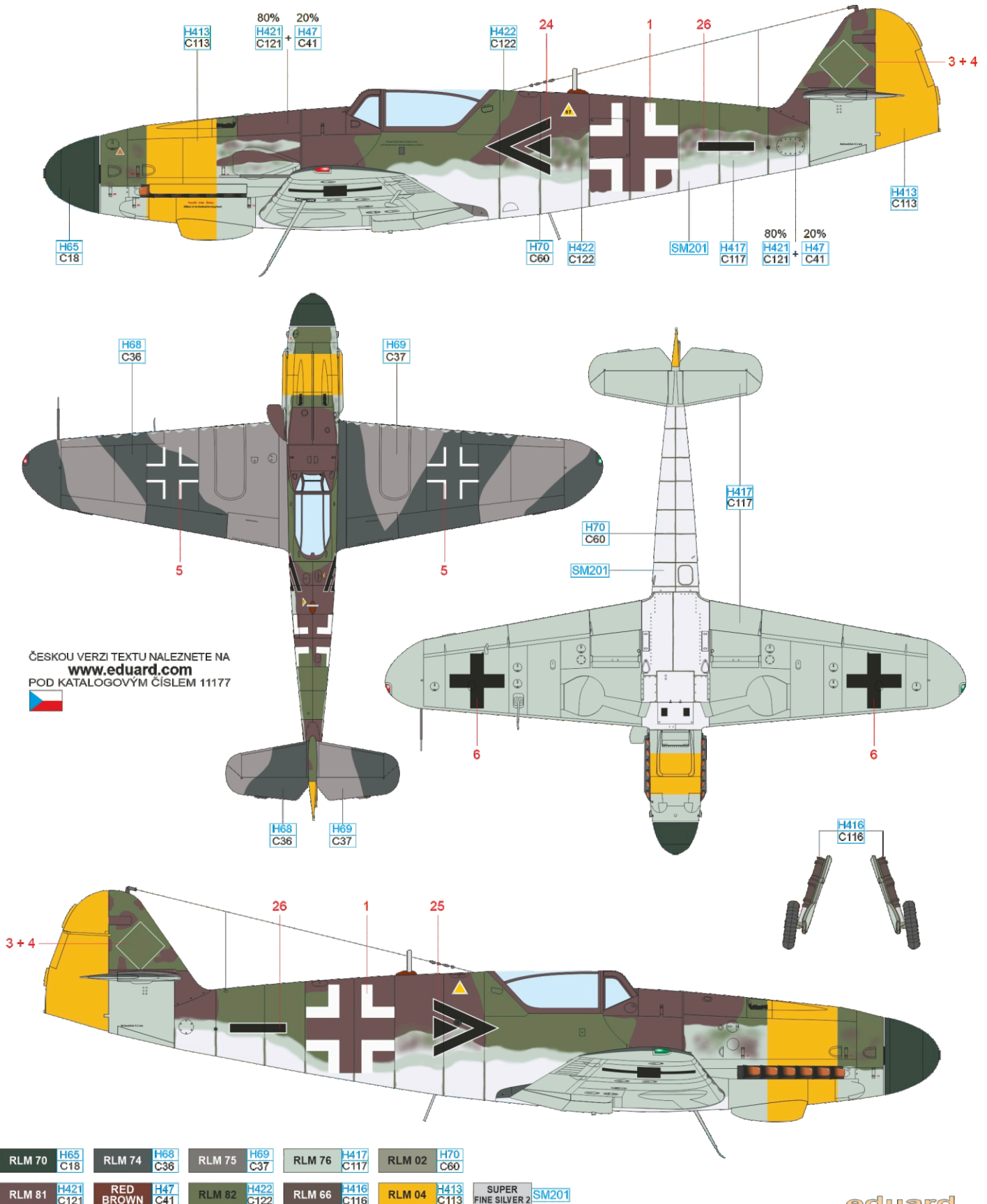
D 5./JG 11, Strausberg Airfield, Germany, early 1945

By the end of 1944, II./JG 11 was equipped mainly with Messerschmitts Bf 109G-14/AS. During December this unit lost 42 machines in combat and due to accidents. In the same month first delivery of K-4 version arrived. During Operation Bodenplatte the II./JG 11 lost nine more planes, including the first two K-4s lost in combat. This unit was deployed from late January 1945 to Strausberg air base east of Berlin against the Soviet Air Force. The machine probably carried a yellow band as a quick identification feature of JG 11 among Luftwaffe fighter units. The commander of II./JG 11 from August 1944 until its disbandment in early April 1945 was Hptm. Karl Leonhard. Born in 1913, he served with I./JG 53 at the start of the war and achieved his first victory, Potez 63, on May 26, 1940. His last victories (21st-23rd) were achieved on April 16, 1945, in an Fw 190A against Soviet bombers, as the last commander of I./JG 11. After the war he moved to the USA and died in San Diego in 1995. Fuselage was probably painted in RLM 74 and RLM 75 with yellow-grey color of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.

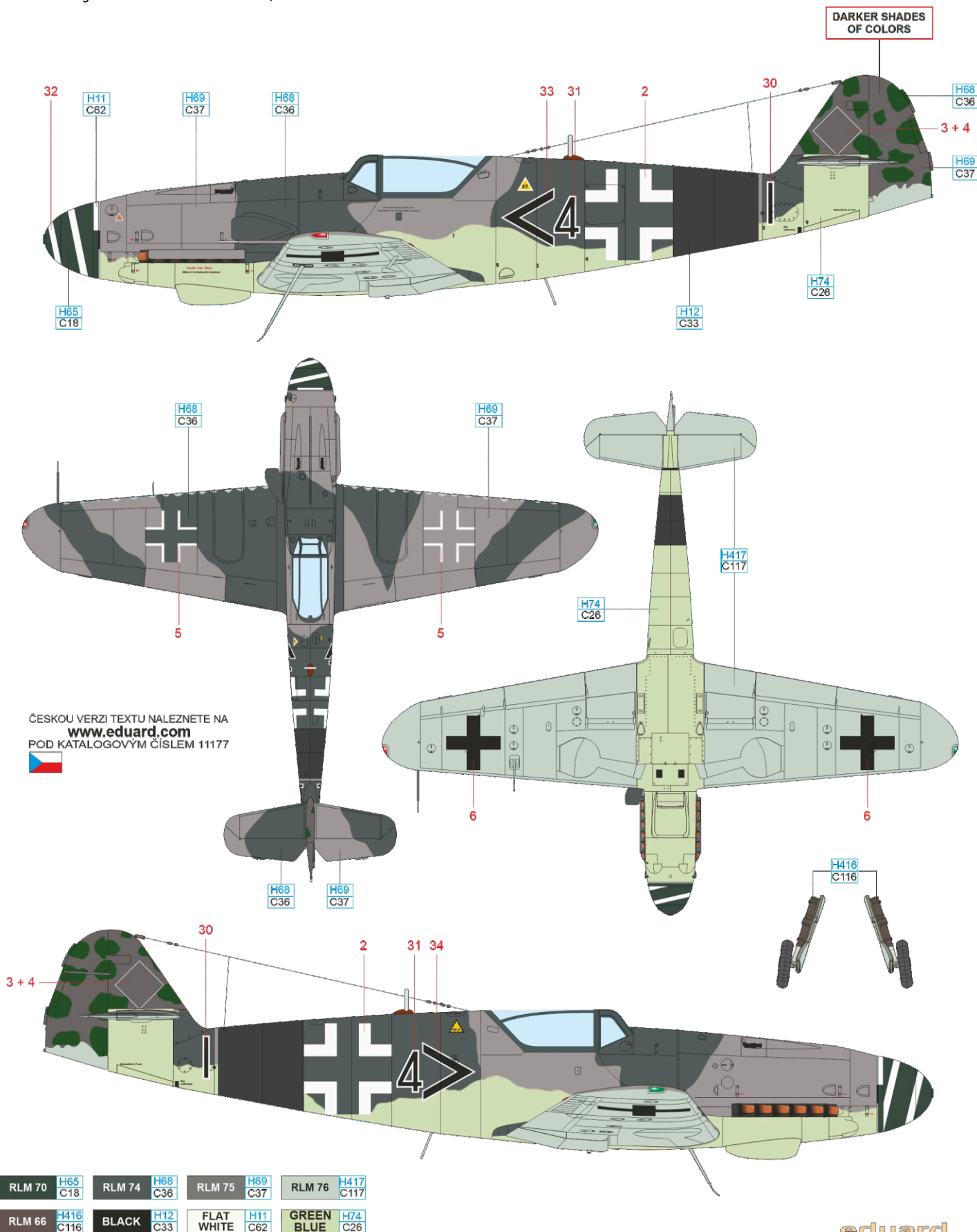


F Maj. Wilhelm Batz, CO of II./JG 52, Zeltweg, Austria, May 1945

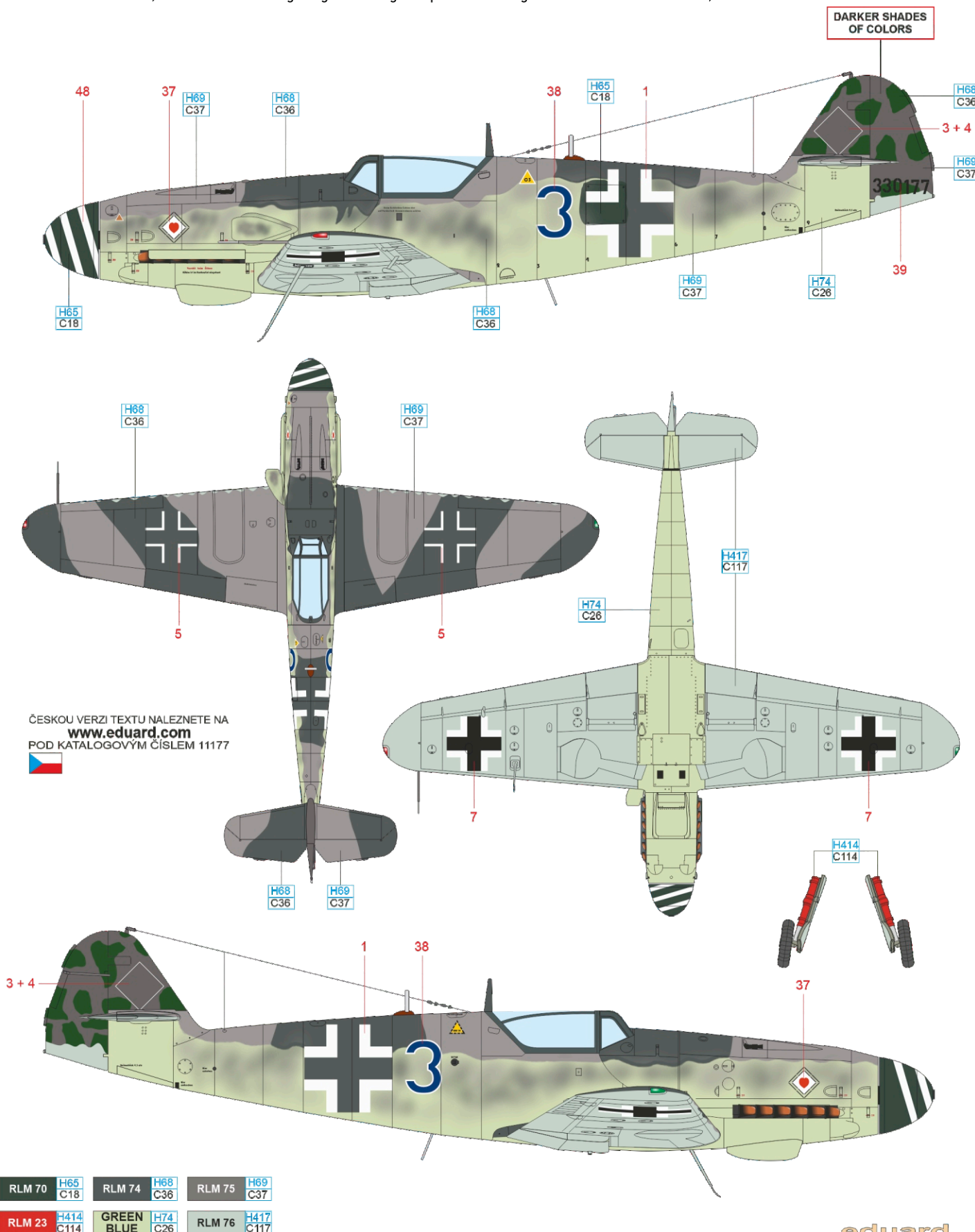
This aircraft (probably 334xxx series) was the personal mount of the CO of II./JG 52, Maj. Wilhelm Batz. In February 1943 he was assigned to the Stab II./JG 52 on the Eastern Front and achieved his first victory on March 11. In May he was appointed CO of 5./JG 52. By March 1944 he had already achieved his 100th victory and in April he was appointed CO of III./JG 52. In early February 1945 he became commander of II./JG 52 in Hungary. He scored his last victory (237th) on April 16, 1945. Five days later he received the Swords to the Knight's Cross with Oak Leaves. Batz and his unit flew from Zeltweg, Austria, to Bad Aibling, Bavaria, on May 8, 1945, to surrender, escorted by a formation of Thunderbolts in the final part of the route. After the war he joined the Bundesluftwaffe and successively commanded Flugzeugführerschule S and Lufttransportgeschwader 63. Yellow markings were introduced by Luftflotte 4 in March 1945. The fuselage and vertical tail were painted with RLM 81 (dark brown variant) and RLM 82. The lower part of the fuselage was left unpainted, the joints were filled. Fuselage sides were sprayed with RLM 76, which is also used on the oil cooler cowling. The wing was camouflaged with RLM 74, 75 and 76.



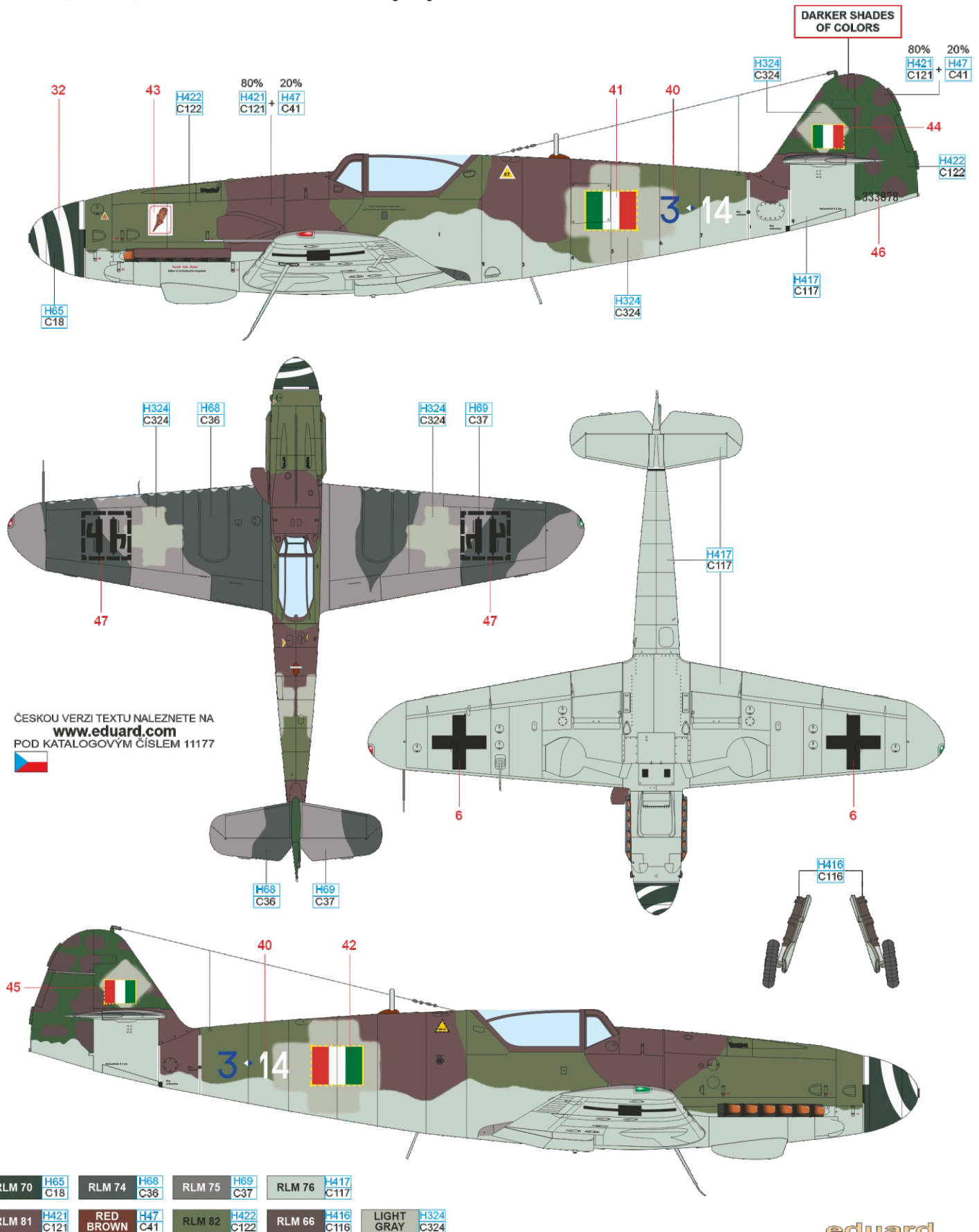
Twenty-year-old Horst Potreck served in the 11./JG 53 in 1944 and later was assigned to Stab III./JG 53. The CO of III./JG 53 at that time was Hptm. Siegfried Luckenbach. In the summer of 1943, at the age of thirty-one, he began serving with Stab III./JG 1 in the Netherlands and scored three victories. A year later, he briefly commanded I./JG 27 on the Western Front. In September 1944 he was reassigned to Stab III./JG 53 and took over 12. Staffel. During Operation Bodenplatte he was shot down by an American fighter but escaped. At the end of January 1945 he became commander of III./JG 53 and scored several more victories. In February he was again shot down in combat with the Americans. His career ended in April accident when Luckenbach unexpectedly stopped after landing and climbed onto the wing. Potreck apparently did not see him, rammed his aircraft and Luckenbach was severely wounded. The wreckage of the machine Chevron 4, probably Potreck's, was found by Allied soldiers after the fighting ended. Fuselage was probably painted in RLM 74 and RLM 75 with yellow-grey version of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.

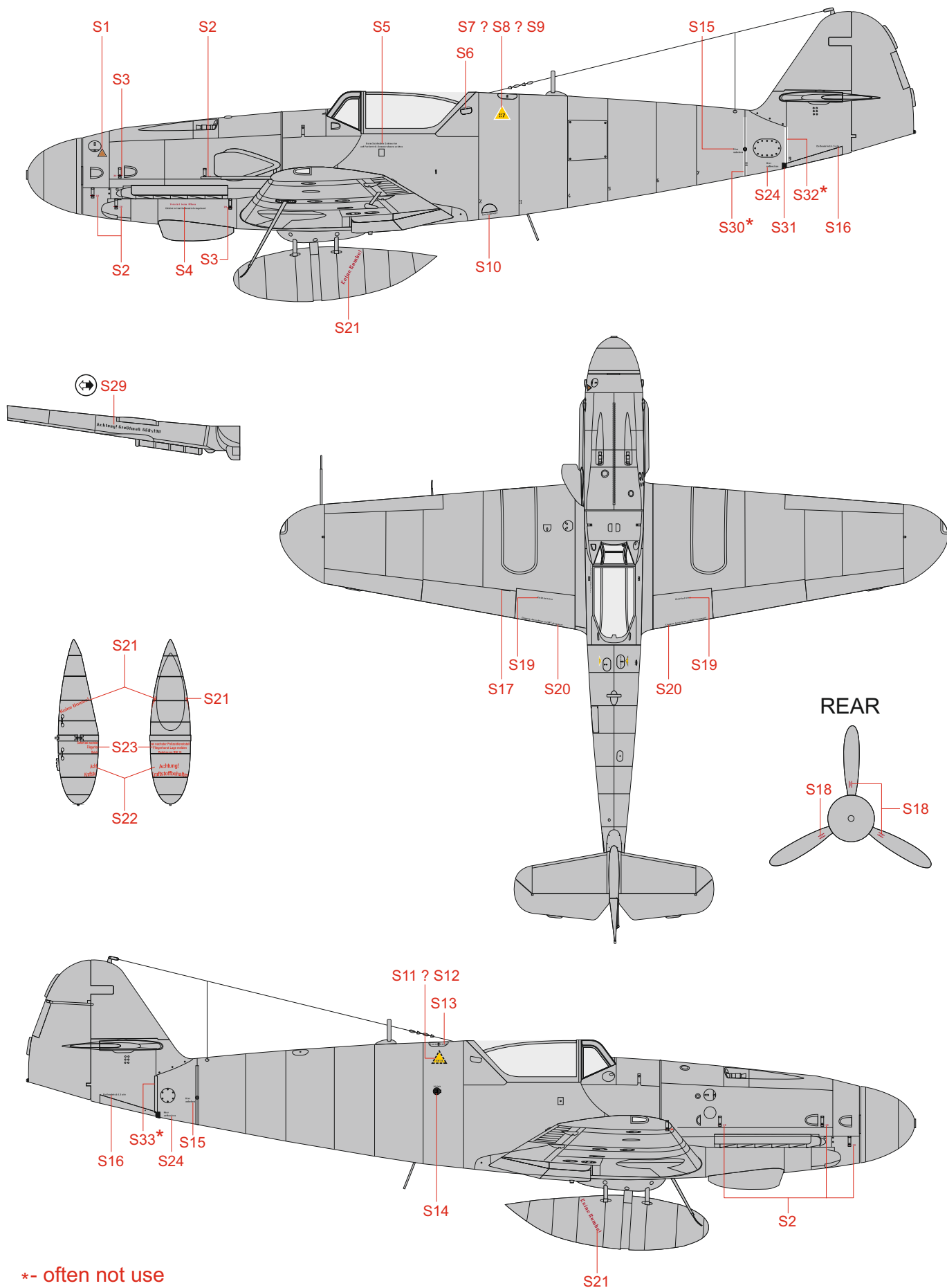


In October 1944, III./JG 77 became the first Luftwaffe fighter unit to be completely re-equipped with the Bf 109K-4. They received 68 of these aircraft. Its commander was the experienced JG 77 veteran Major Armin Köhler (40 victories, KC). Uffz. Alfred Nitsch was photographed with the "Blue 3" in November 1944. It is highly likely that the aircraft was serial number 330177. Fw. Hans Rössner (12 victories) was lost in this plane during a dogfight with Thunderbolts on December 23, 1944, near Münstereifel. Although the Germans claimed three P-47s as shot down, 13 Bf 109K-4s were destroyed or damaged. Two pilots were killed and four were wounded. During December 1944, III./JG 77 lost about half of its aircraft. During Operation Bodenplatte, in which III./JG 77 lost a further 11 machines and pilots, again part of its armament was various versions of the Bf 109G. From mid-January 1945 it was deployed on the Eastern Front. At the end of the war this unit fought in Upper Silesia, based at Beneschau in the Hlučín region (today Dolní Benešov, Czech Republic). Fuselage was probably painted in RLM 74 and RLM 75 with yellow-grey version of RLM 76. Vertical tail was painted in darker version of RLM 74 and 75, the RLM 74 had a tinge of green. Wing was painted with lighter shade of colors RLM 74, 75 and 76.



This aircraft, produced in February 1945, was one of six Bf 109K-4s received by the Aeronautica Nazionale Repubblicana in Northern Italy. During February it was assigned to 3a Squadriglia "Arciere", which was part of Io Gruppo Caccia "Asso di Bastoni" under the command of Maggiore Adriano Visconti (10 victories). The aircraft, WNr. 333878 "3-14", was damaged in aerial combat on April 10, 1945. In the early morning hours, three Bf 109s from Io Gr. C. were sent against four P-47s from the 65th FS, 57th FG, which were conducting a weather reconnaissance in the Milan-Lago di Como area. In the aerial combat a Bf 109G-14/AS "1-7", piloted by M.llo Veronesi, and a Bf 109K-4 "3-14", piloted by S. Ten Gallori, were damaged. One P-47 was reported damaged by M.llo Forlani. The American pilots did not claim any victories. In late April, the Io Gr. C. moved to Malpensa and on April 29, after receiving security guarantees, laid down its arms and surrendered. Visconti and his aide, however, were shot dead by Russian bodyguards of resistance commander Aldo Aniasi. Fuselage and vertical tail was probably painted in RLM 81 (dark brown variant) and RLM 82 with yellow-grey version of RLM 76. Wing was painted with colors RLM 74, 75 and 76, the RLM 74 was darker version with tinge of green.





* - often not use