

# S-199 ERLA canopy

**eduard**

1/48 Scale Plastic Model Kit

**HYBRID**



item No. 948011

**The Avia S-199 was an aircraft that, despite its rather poor performance and flying characteristics, played an important role both in the rebirth of the post-war Czechoslovak Air Force as well as in the defense of the new state of Israel.**

At the end of the World War II, countries occupied by Nazi Germany regained their freedom. At the same time, they faced the urgent need to rebuild their armed forces. For a decimated industry and economy, this was no easy task in many countries.

Although post-war Czechoslovakia acquired aircraft the members of the foreign resistance returned home with (both from Eastern and Western front), there were not enough of them. Moreover, the war-impooverished country lacked sufficient funds to purchase the large number of modern fighter aircraft it needed. The estimated cost of one billion Czech crowns was amount equal to the entire financial reserve in gold of the country at that time. Nevertheless, it was necessary to build air regiments and to train new pilots. The intended solution was to use the airframes of German Messerschmitts Bf 109G and K versions and DB 605 engines, of which Czechoslovakia had quite a large number in various state of condition. Other airframes were purchased from Bulgaria. A total of 21 Avia S-99s were assembled, which in fact were the German Bf 109G-10s apart of some minor technical details. These aircraft undergone army trials, although all but one of them served with the Police Air Units.

But the DB 605 engines were troublesome, as they were of poor quality late war production, not to mention the fact the stocks included several different versions of this engine varying in many aspects including the type of the fuel. Further production of the S-99 was also compromised by a massive explosion at the former sugar factory Krásné Březno on July 31, 1945. The facility served as military storage site at the time and most of the DB 605 engines were destroyed there by the explosion. Although there was still stock of the DB 605 engines allowing production, the decision was to give it up.

As there was also a significant number of Jumo 211 and 211F engines available (up to 4,270 units) in Czechoslovakia, the decision was made to use them instead of DB 605. This was a stop-gap solution only, as the Jumo 211 engine was not ideal for fighter aircraft. Even less suitable was the Jumo VS-11 propeller. It had wooden blades that were heavy, plus they were quite wide, which suited bombers, but not fighter aircraft. They generated massive torque, which was the problem especially during take-offs. The aircraft had high tendency to run out off the course, which had to be negotiated by pilot's controls input. This led to many dangerous situations and crashes. Because of its handling, the S-199 earned the nickname Mezek, which in the Czech language means Mule.

In spite of all the problems the S-199s gradually equipped all the fighter units of the Czechoslovak Air Force between 1948 to 1950. Thanks to them, the training of new fighter pilots was possible.

## Lacking desperately

The new fighter aircraft was offering flight performances that were far from the top of the contemporary machinery at the time of its creation. It lagged behind the best piston-engined aircraft in top speed by about 110 to 124 mph (180 to 200 km/h). This was down to the engine, which, even in comparison with the least powerful version of the original DB 605, lacked some 107 hp (80 kW), but when compared to the DB 605AM version it had up to 426 hp (317 kW) power deficit, and compared to the top piston machines of its time the deficit was up to 1140 hp (850 kW) No wonder that S-199 could not compete with modern fighters in terms of flight performance. However, it was fully aerobatic aircraft, so the air combat training and also gunnery training were possible. Bombing training could also be carried thanks to the 4 × ETC 50 bomb racks. A total of 510 single-seat and 47 two-seat CS-199 converted Messerschmitts were ordered at the end of 1947. However, the exact number actually produced is unclear and is estimated at between 450 and 500 of S-199s, while 82 of CS-199s were to be produced. Gradual modifications were made during production.

## This kit: Avia S-199 ERLA canopy

The first S-199s produced differed little from the Bf 109G/K design save for the engine and the necessary changes to the cowling. These included narrow longitudinal extensions to the original oval bulges above the machine guns due to the bulkier engine mount. Also, the air intake to the carburettor was moved from port to starboard side. The front of the fuselage was modified to better match the smaller diameter spinner. However, it was not long before changes began to take place. The most visible of them were replacement of the standard oil cooler by heat exchanger under the cockpit floor and change of the canopy from the original side-opening "Erla Haube" to semi-bubble rear sliding one. The latter improved the view from the cockpit and increased the space in the pilot's head area as well. Nevertheless, many of the S-199s retained their Erla Haube canopy although they were equipped with the heat exchanger instead of the oil cooler. Another change in design was the angle of the wheels. It changed in relation to the main landing gear legs. Originally, the wheels were almost parallel with the landing gear legs in front view. This arrangement was disadvantageous for taxiing on concrete surfaces, so it was changed to nearly vertical position of wheels. The armament has also changed. Initially, it consisted of only two MG 131 machine guns of 13 mm caliber above the engine, but later some aircraft received another pair of these, mounted in the wing. Finally, MG 151/20 20 mm cannons mounted in cases were installed under the wing instead of the wing machine guns.

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 započítím 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  
ODRÍZNOUTREVERSE SIDE  
OTOČITAPPLY EDUARD MASK  
AND PAINT  
POUŽIT EDUARD MASK  
NABARVIT

**PLEASE CHECK THE LATEST VERSION OF THE INSTRUCTIONS ON [www.eduard.com](http://www.eduard.com)**

PARTS



DÍLY



TEILE



PIÈCES

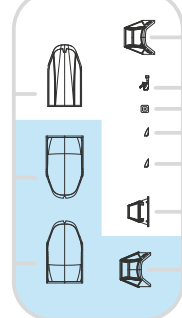


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## PLASTIC PARTS

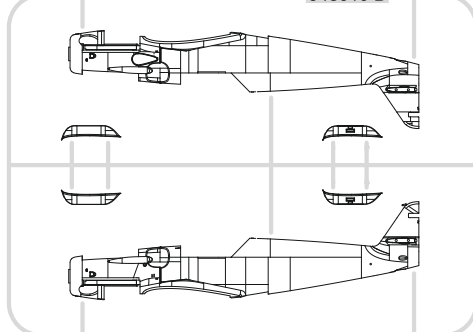
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948010 A



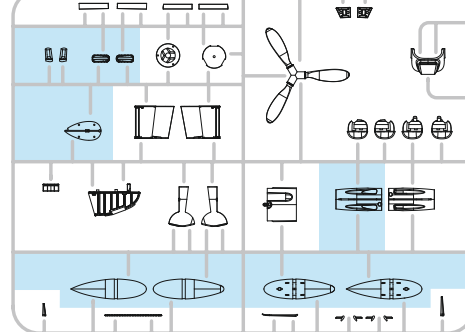
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948010 B



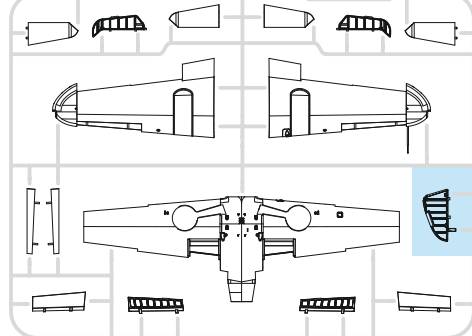
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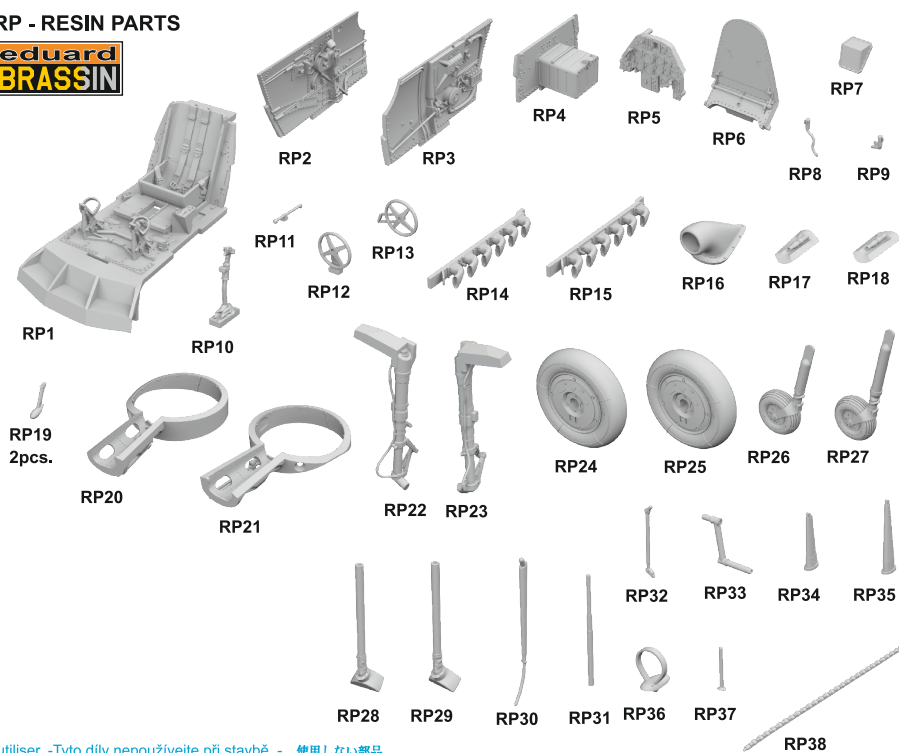
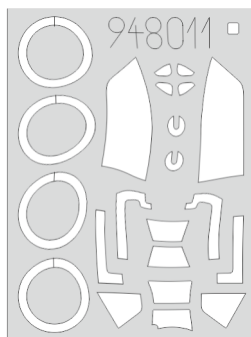


D&gt;

948010 D



## RP - RESIN 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



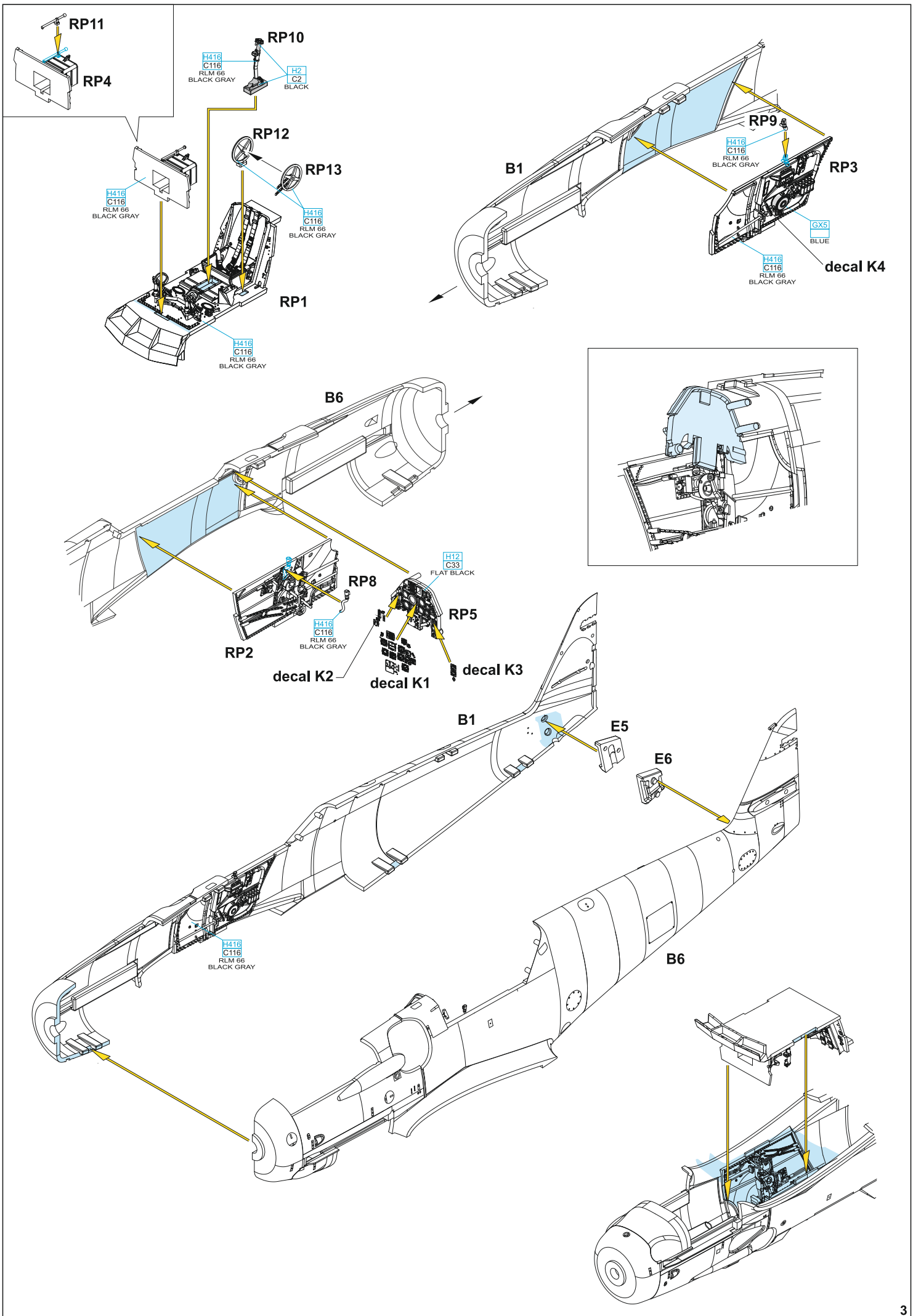
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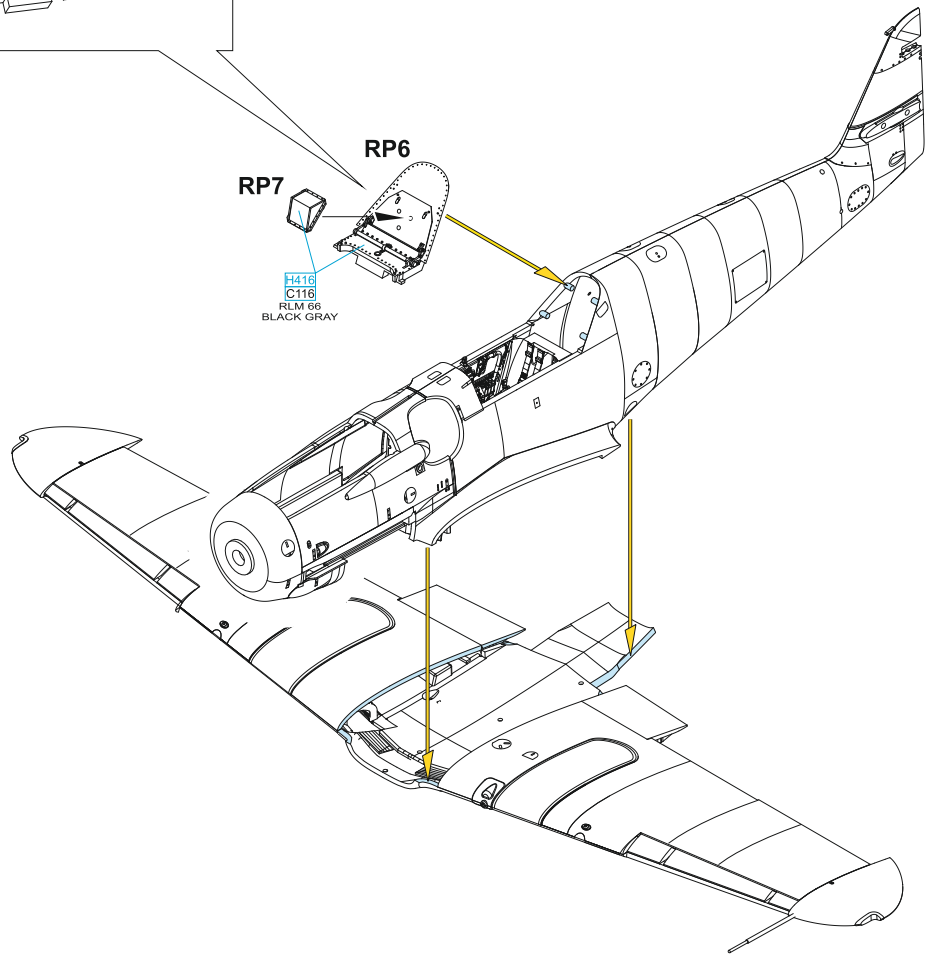
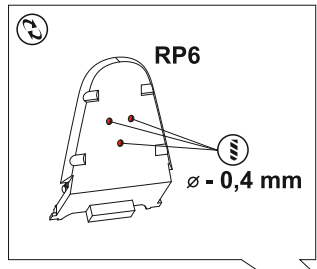
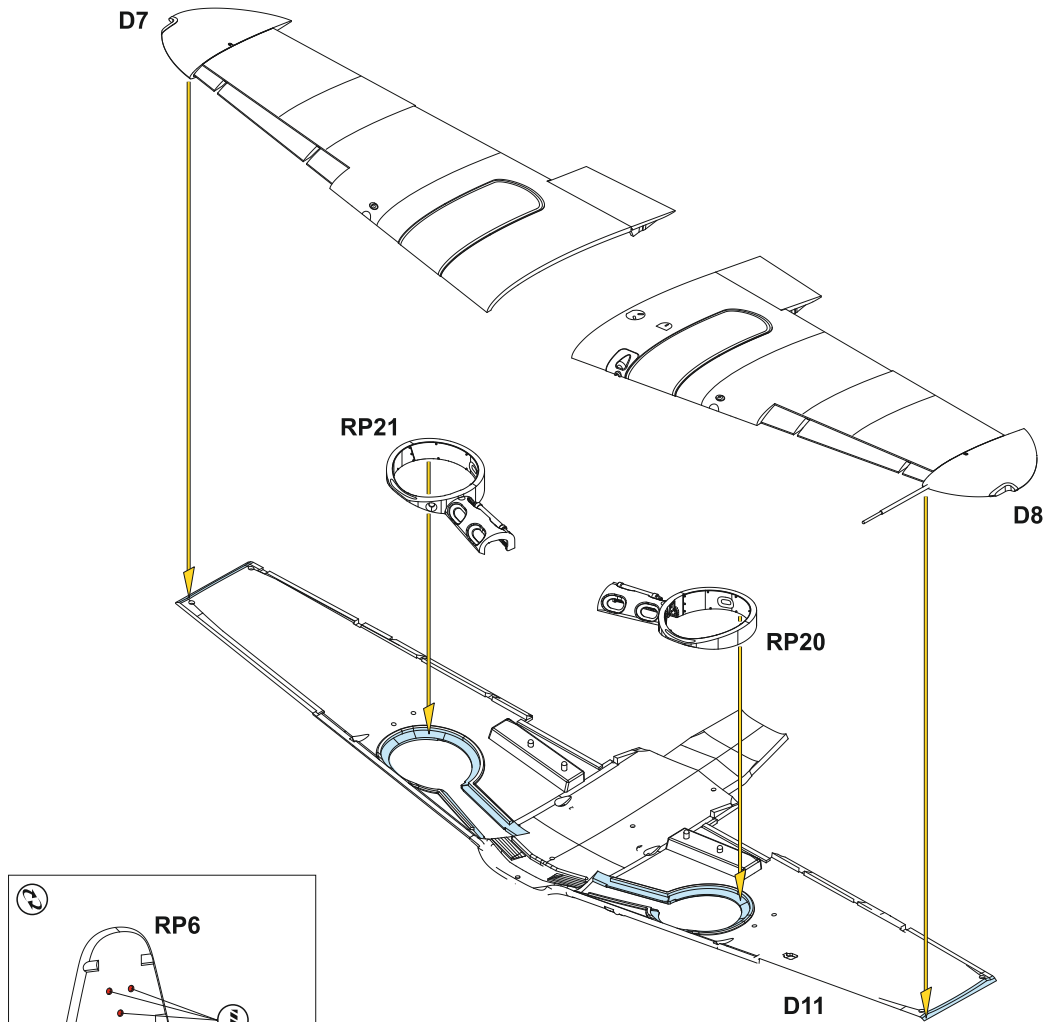


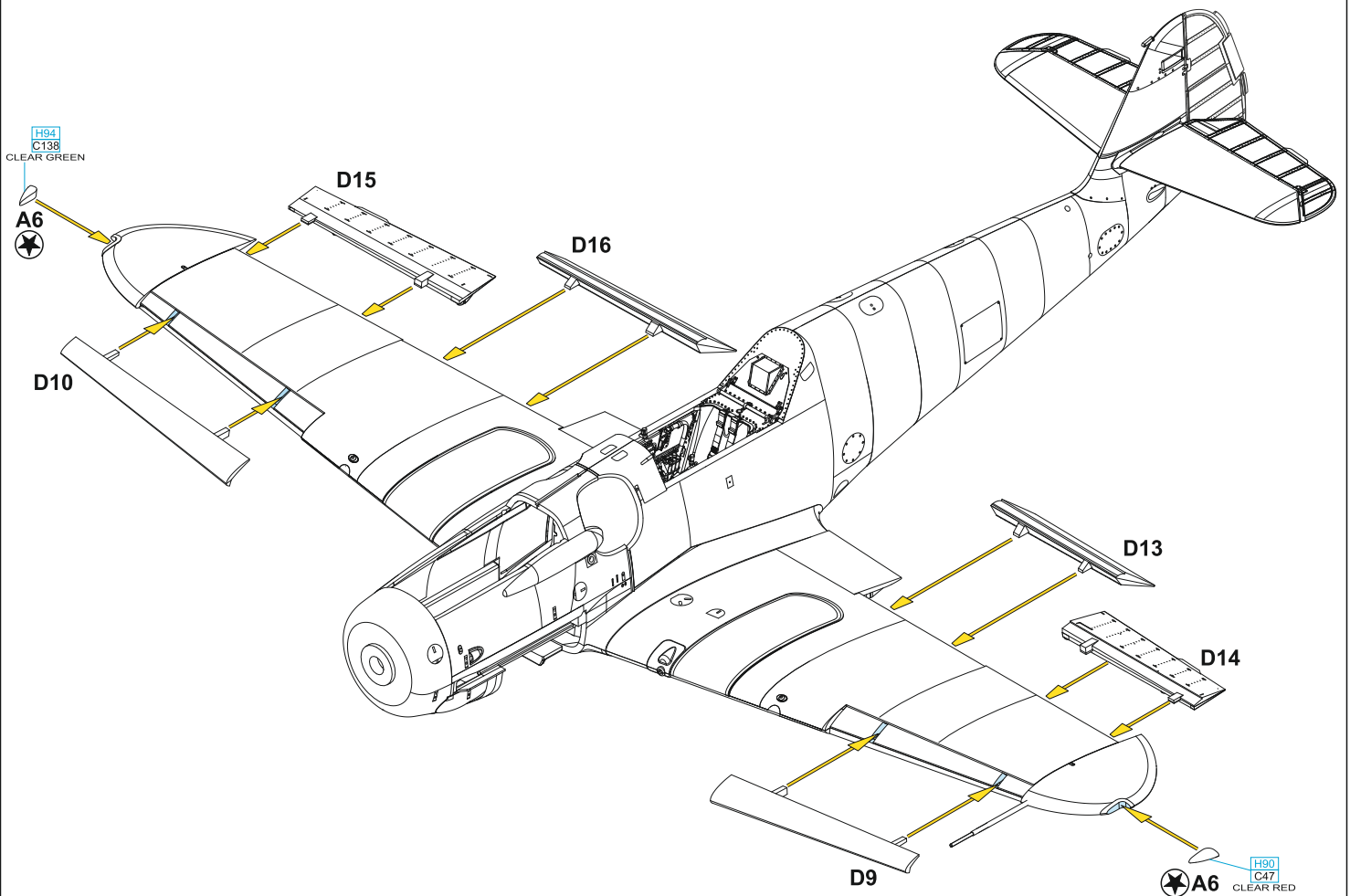
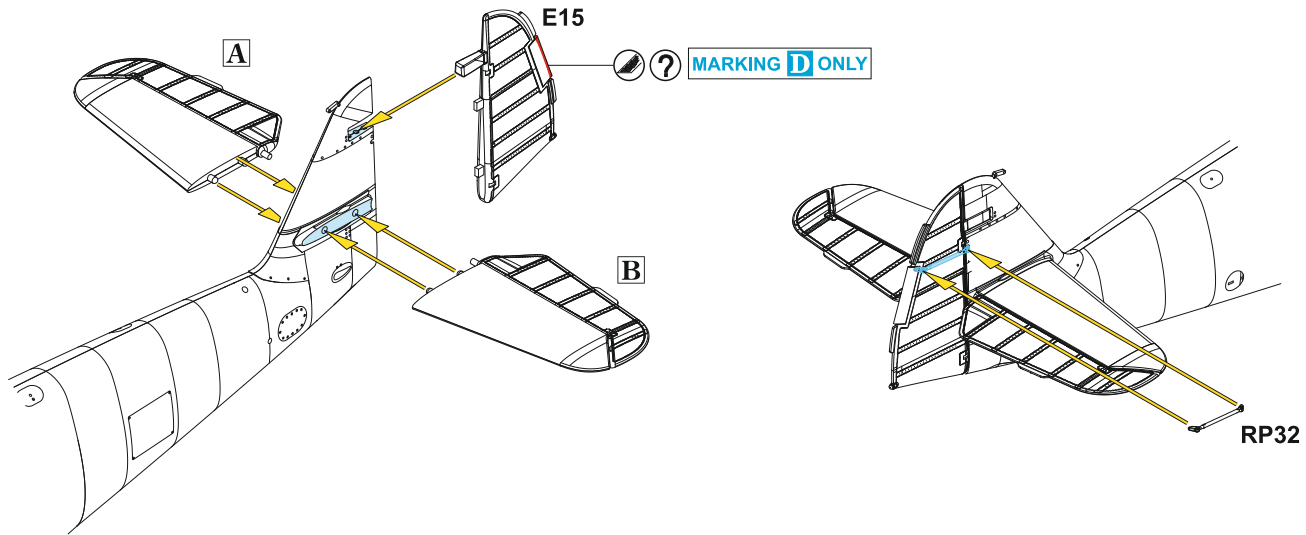
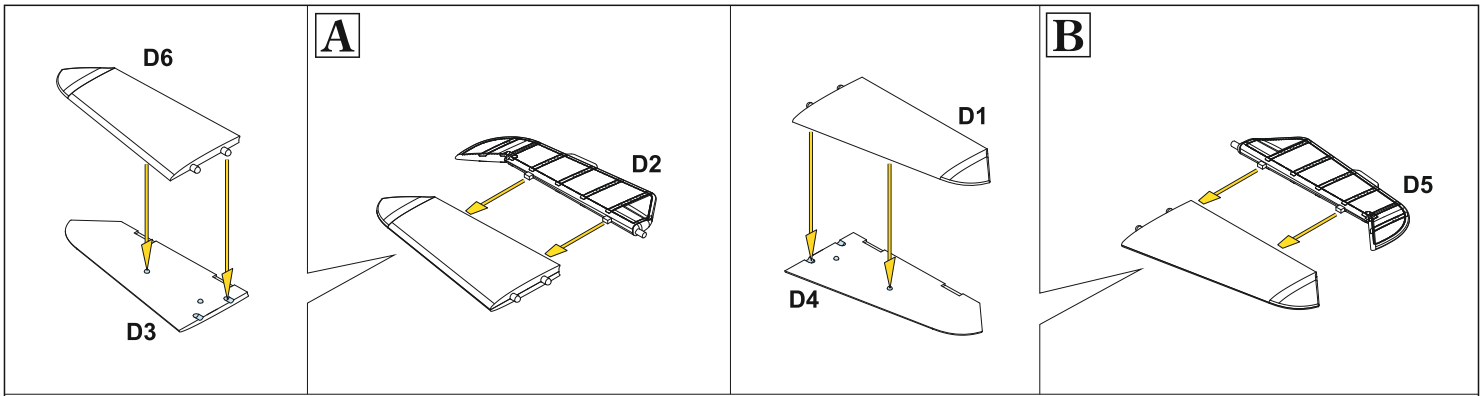
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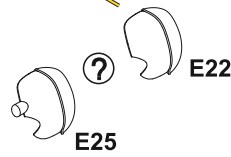
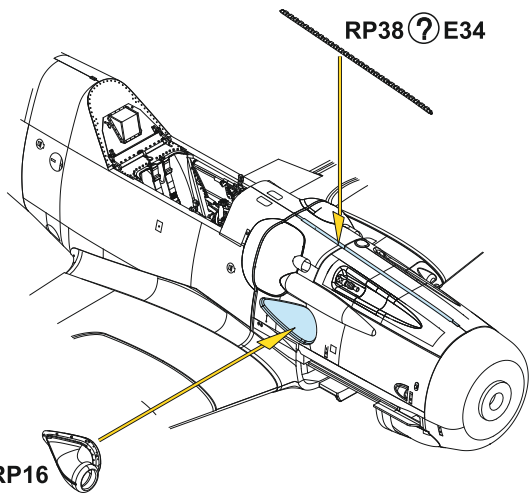
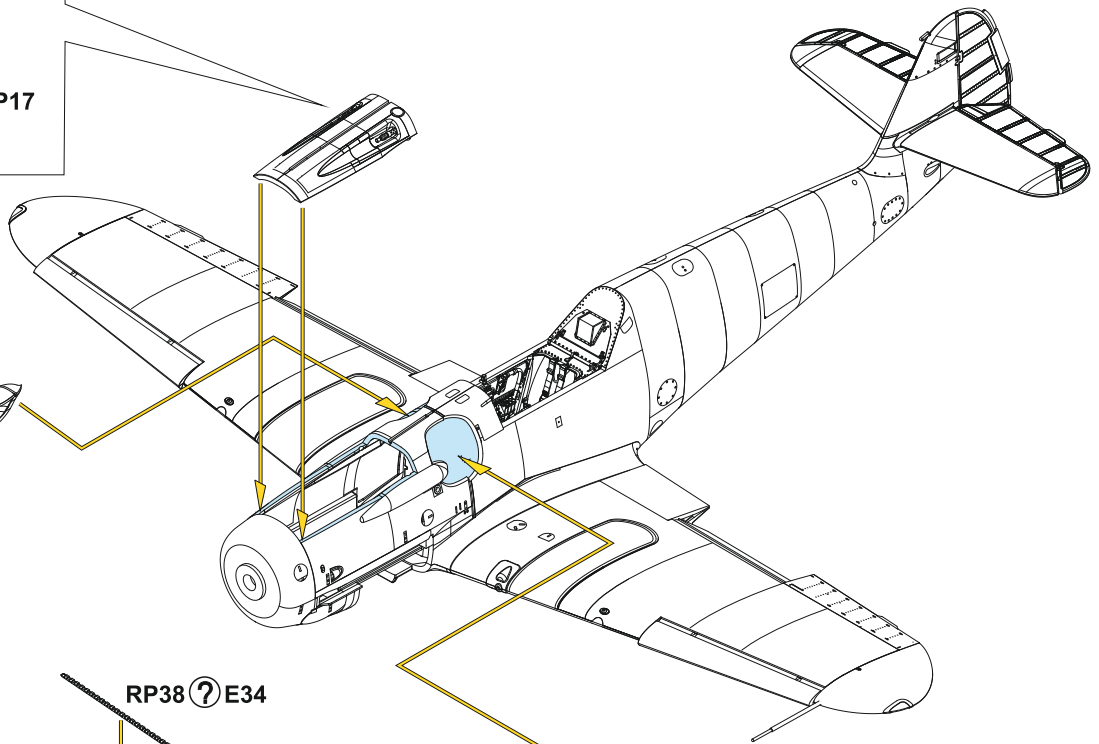
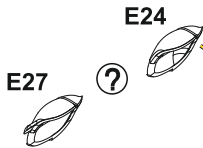
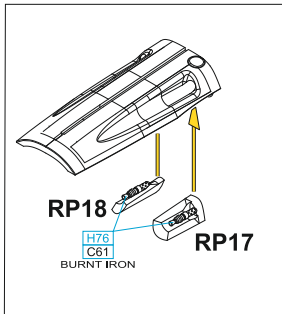
GSI Creos (GUNZE)		
AQUEOUS	Mr.COLOR	
H2	C2	BLACK
H3	C3	RED
H11	C62	WHITE
H12	C33	FLAT BLACK
H25	C34	SKY BLUE
H70	C60	GRAY
H76	C61	BURNT IRON
H77	C137	TIRE BLACK
H85	C45	SAIL COLOR
H90	C47	CLEAR RED
H94	C138	CLEAR GREEN

GSI Creos (GUNZE)		
AQUEOUS	Mr.COLOR	
H315	C315	GRAY
H336	C336	HEMP
H416	C116	BLACK GRAY
H421	C121	RLM81 BROWN VIOLET
H422	C122	LIGHT GREEN
Mr.COLOR SUPER METALLIC		
SM201		SUPER FINE SILVER
SM206		SUPER CHROME SILVER
Mr.COLOR GX		
GX5		SUSIE BLUE

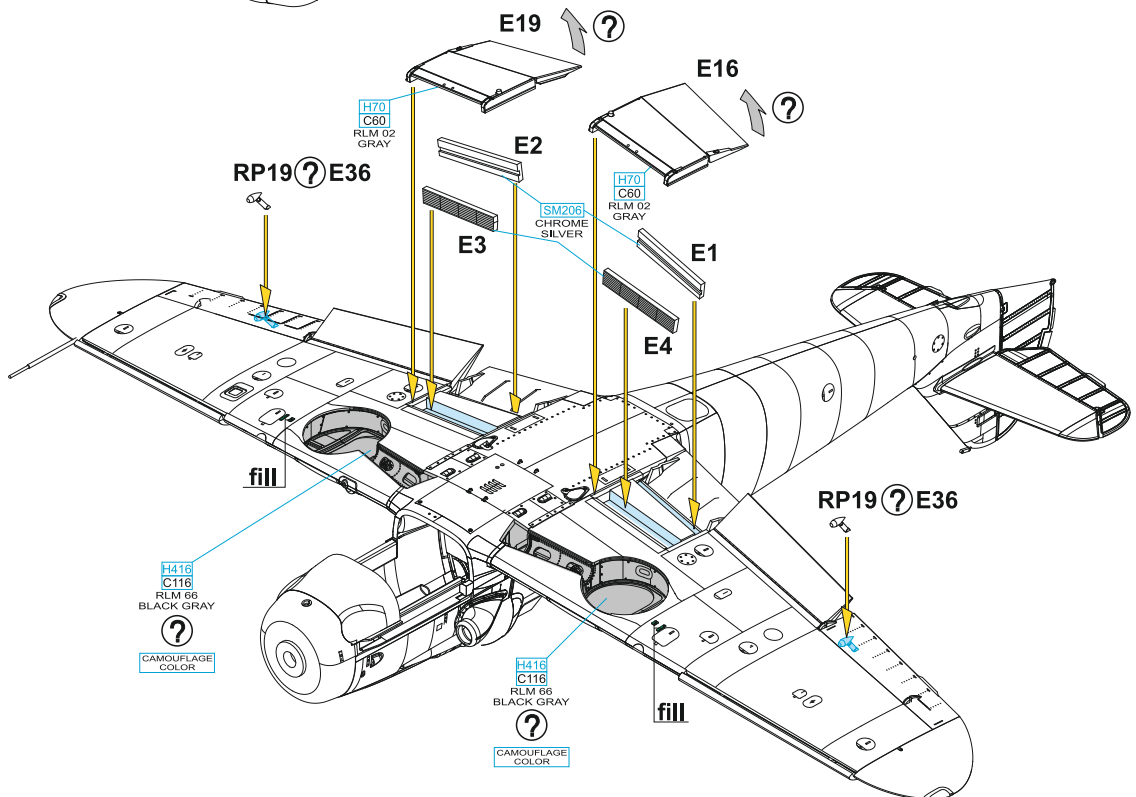


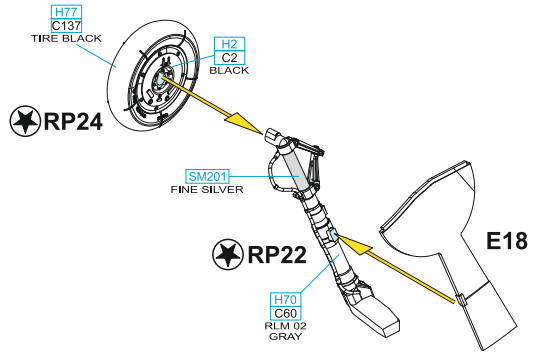
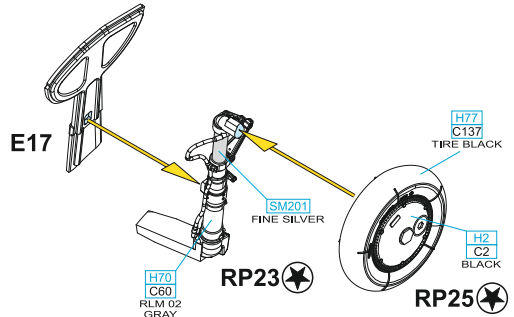
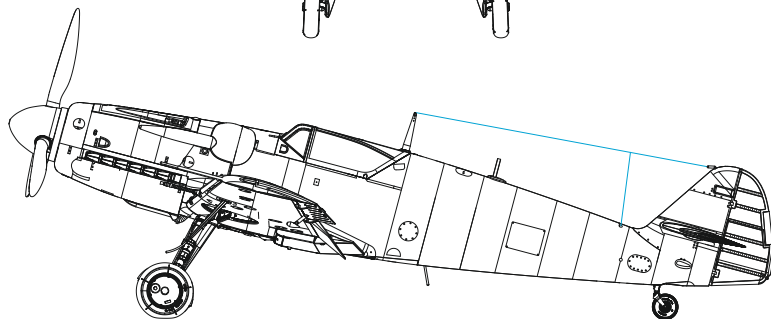
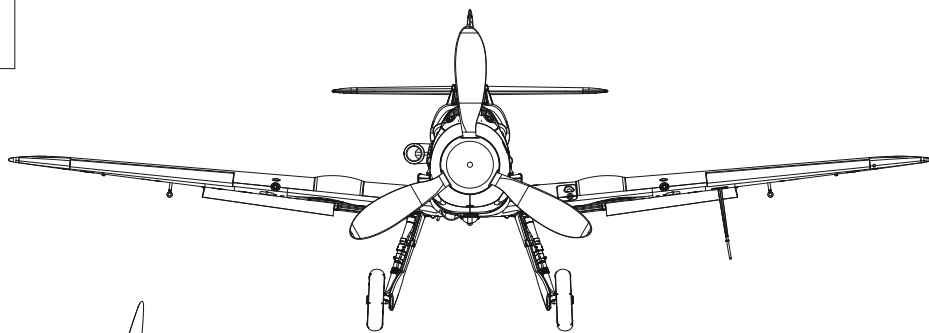
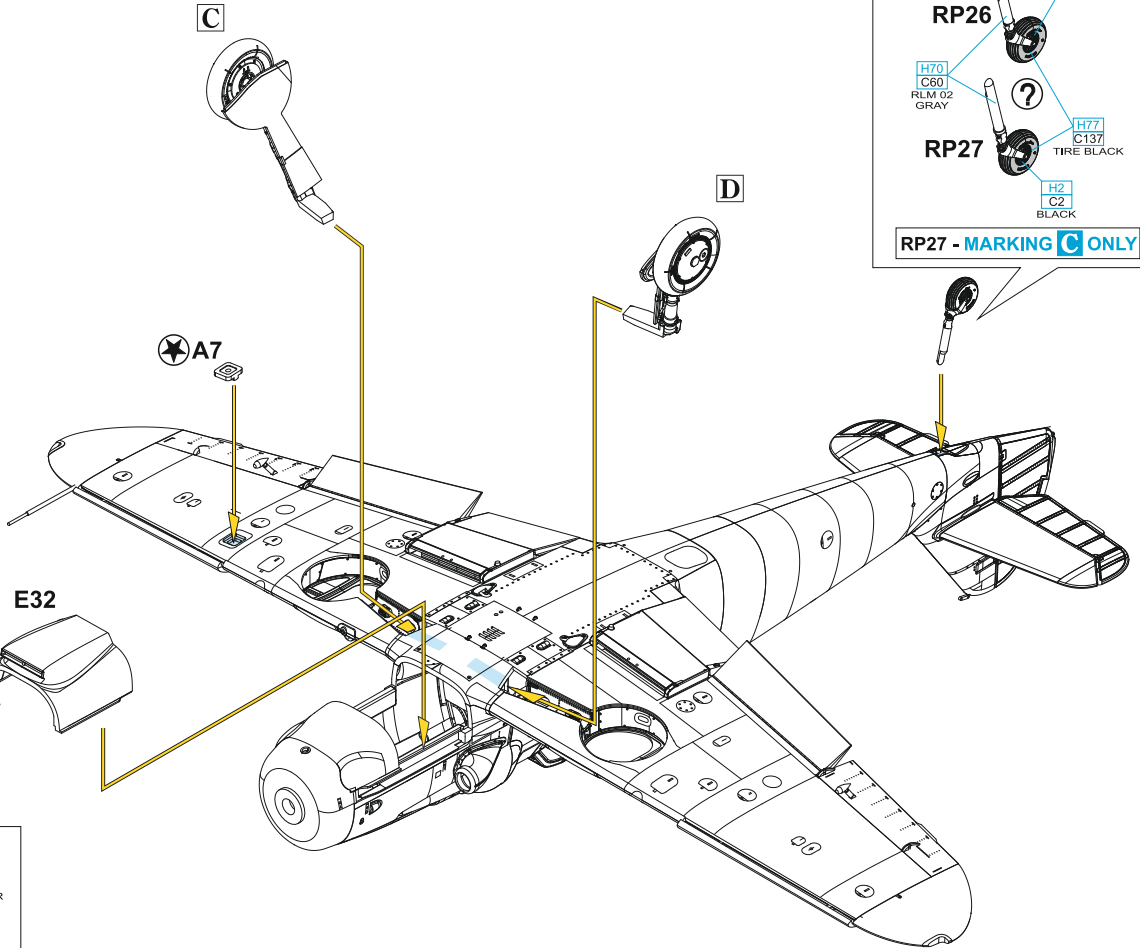
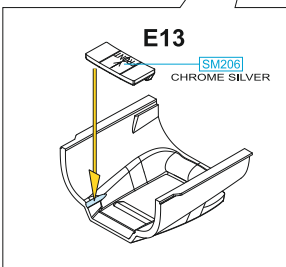
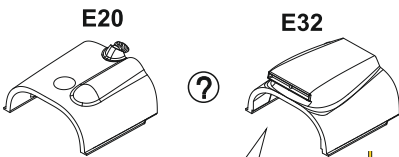


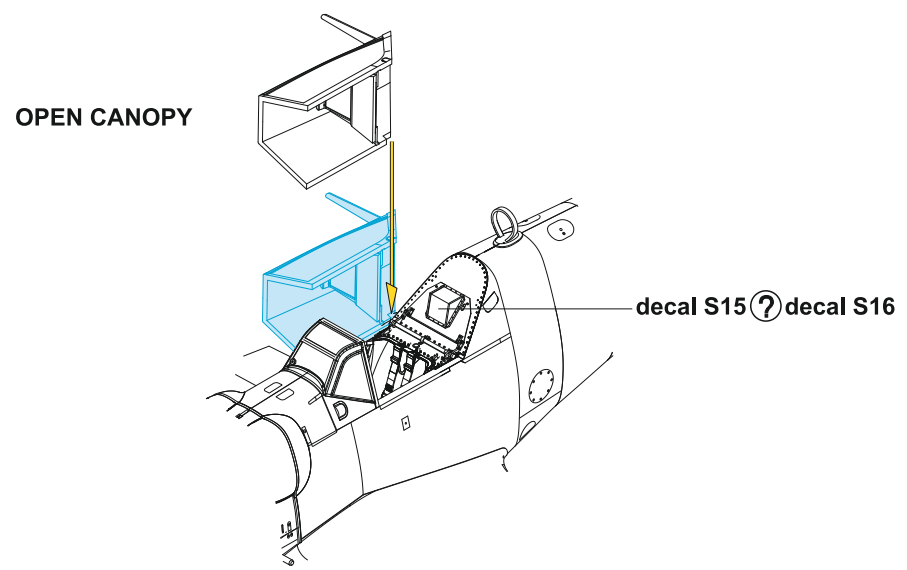
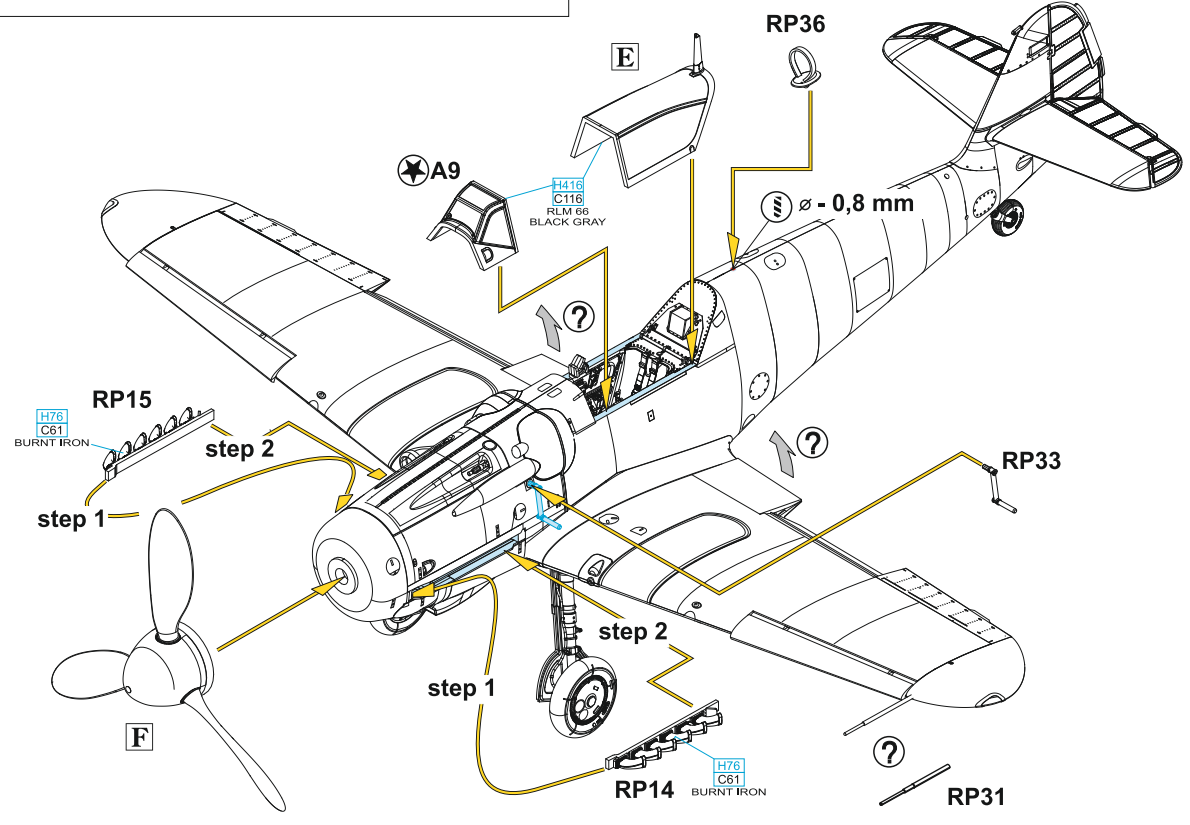
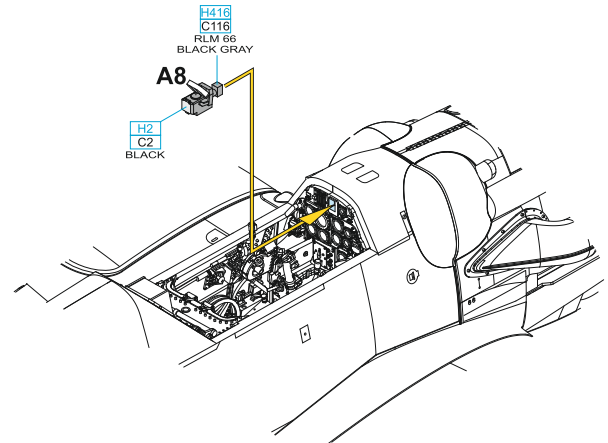
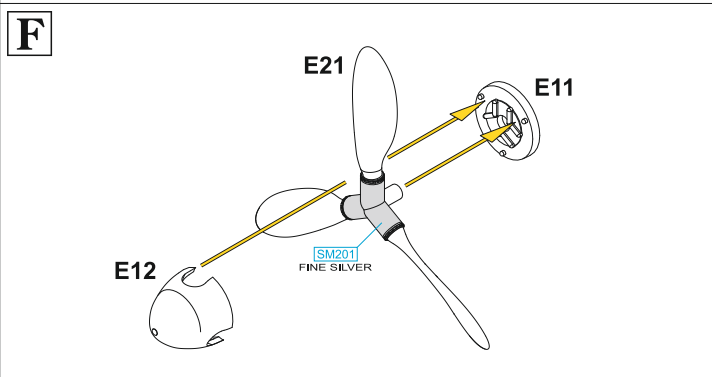
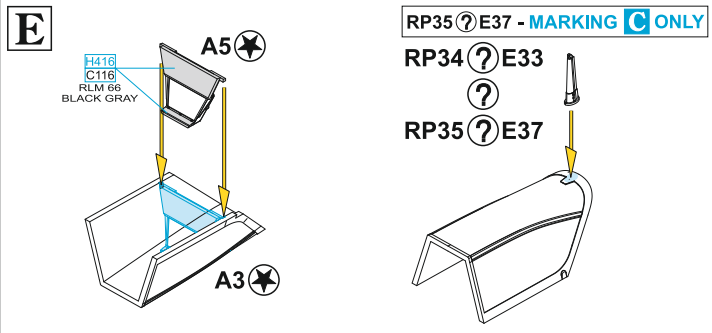


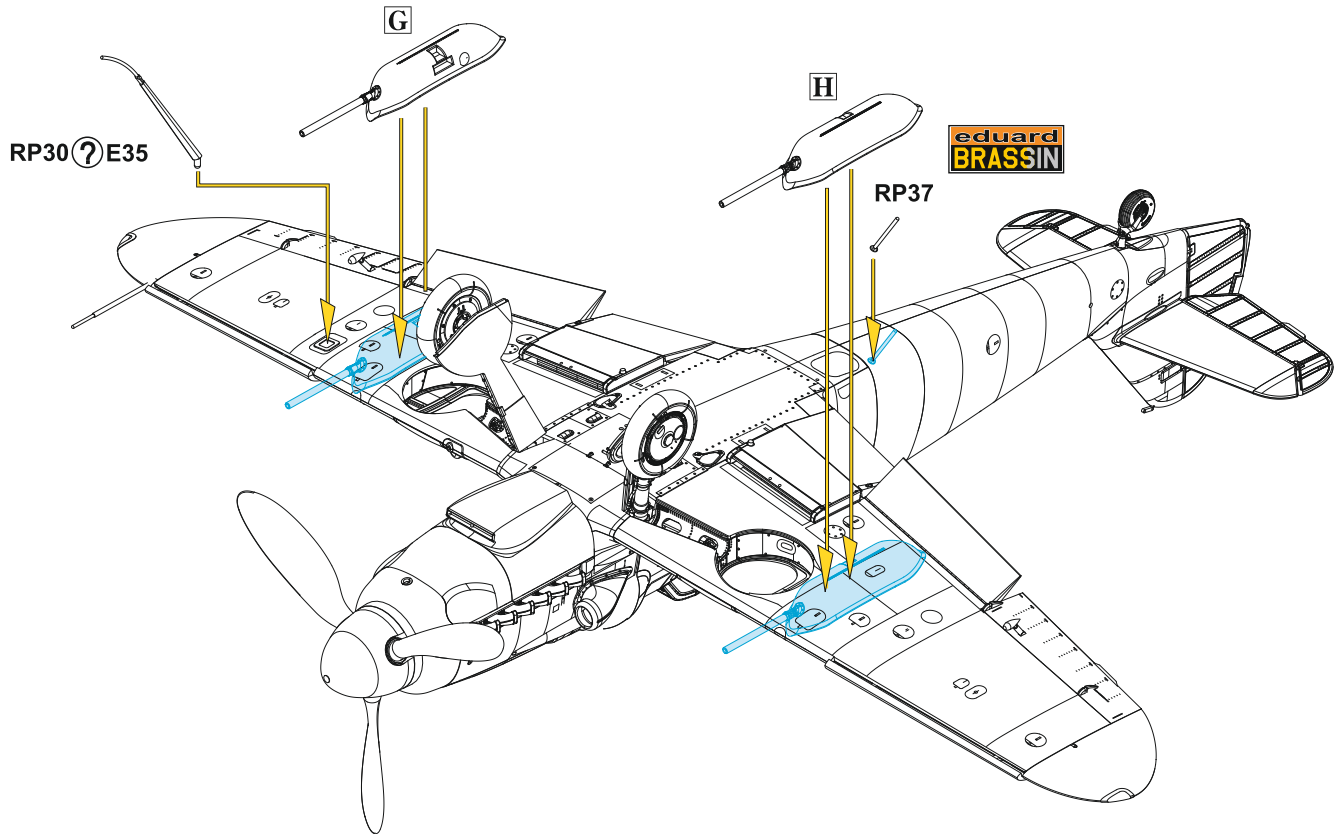
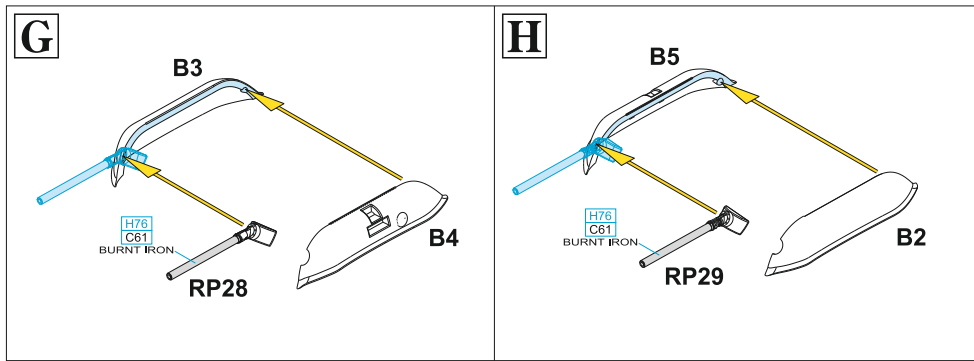


E25, E27 - MARKINGS **A, B, F**  
E22, E24 - MARKINGS **C, D, E**



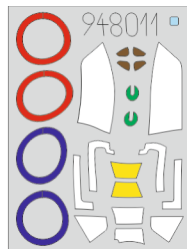
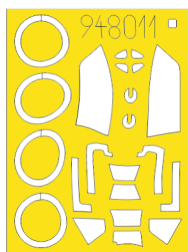
**C****D****C****D****E32 - MARKING C ONLY**



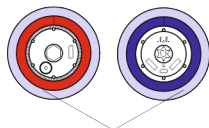


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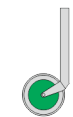
RP24



RP26

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RP27



A5



A6

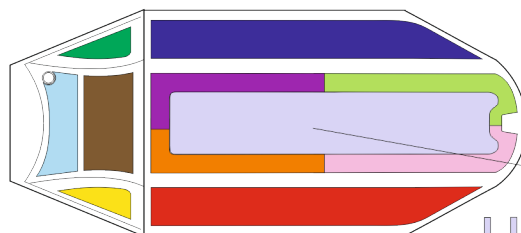
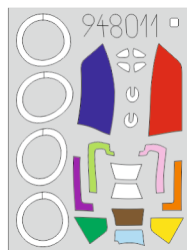


A7



A3

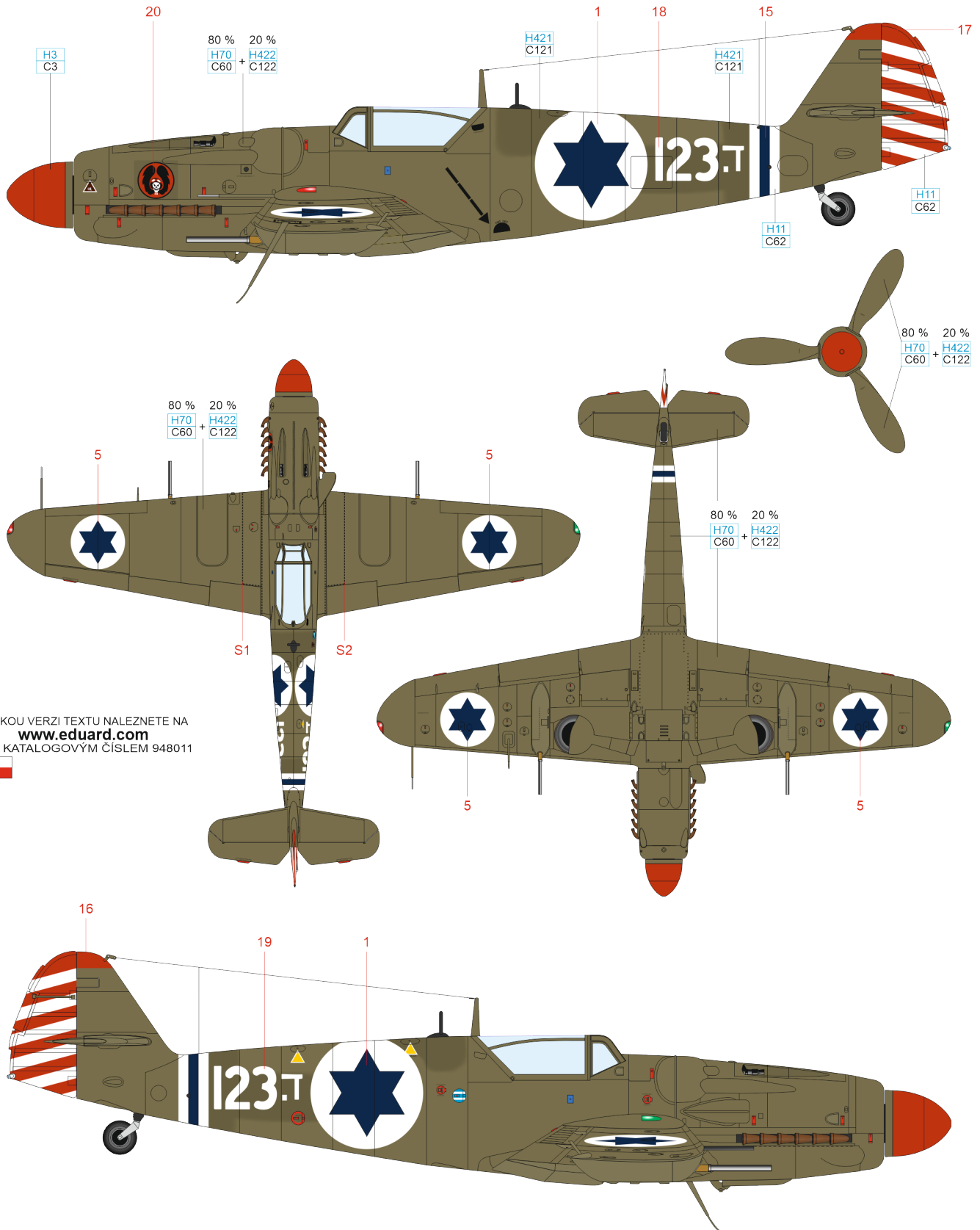
A9



LIQUID MASK

# A 101 Tayeset, Cheyl Ha'avir, Hatzor, Israel, October 1948

The aircraft coded D-123 was delivered to Israel on July 28 on board Balak Flight No. 79 and joined the action on August 15, 1948. A month prior to entry into service, ex-USAAF volunteer pilot Stan Andrews drew up the 101 Tayeset's (Squadron) insignia of a winged skull of death wearing a flight helmet and goggles. The skull symbolizes the Jewish faith's belief in the rising of the dead to form a large army when the messiah comes to earth. The insignia was printed on paper and applied to the left side of the nose of 101 Tayeset's planes. In preparation for Operation Ten Plagues (October 15-22, 1948), later renamed Operation Yoav, 101 Tayeset fighters obtained high visibility markings consisting of red spinners and red and white stripes on the rudders in order to distinguish them from Egyptian aircraft. More to it, the Star of David roundels were applied atop the wings for the first time. During Operation Yoav, Rudi Augarten claimed a Royal Egyptian Air Force Spitfire Mk.IXc flying D-123 on the first day of the offensive, on October 16. The kill was not confirmed by IAF intelligence. In November, D-123 was given the number 1905 as part of the introduction of a new military aircraft marking system. There are a few repairs to the fuselage that appear darker areas on photos of D-123. This has led some researchers to believe the aircraft received a two-tone camouflage. However, it is merely a contrast of older and newer paint of the same shade of green.



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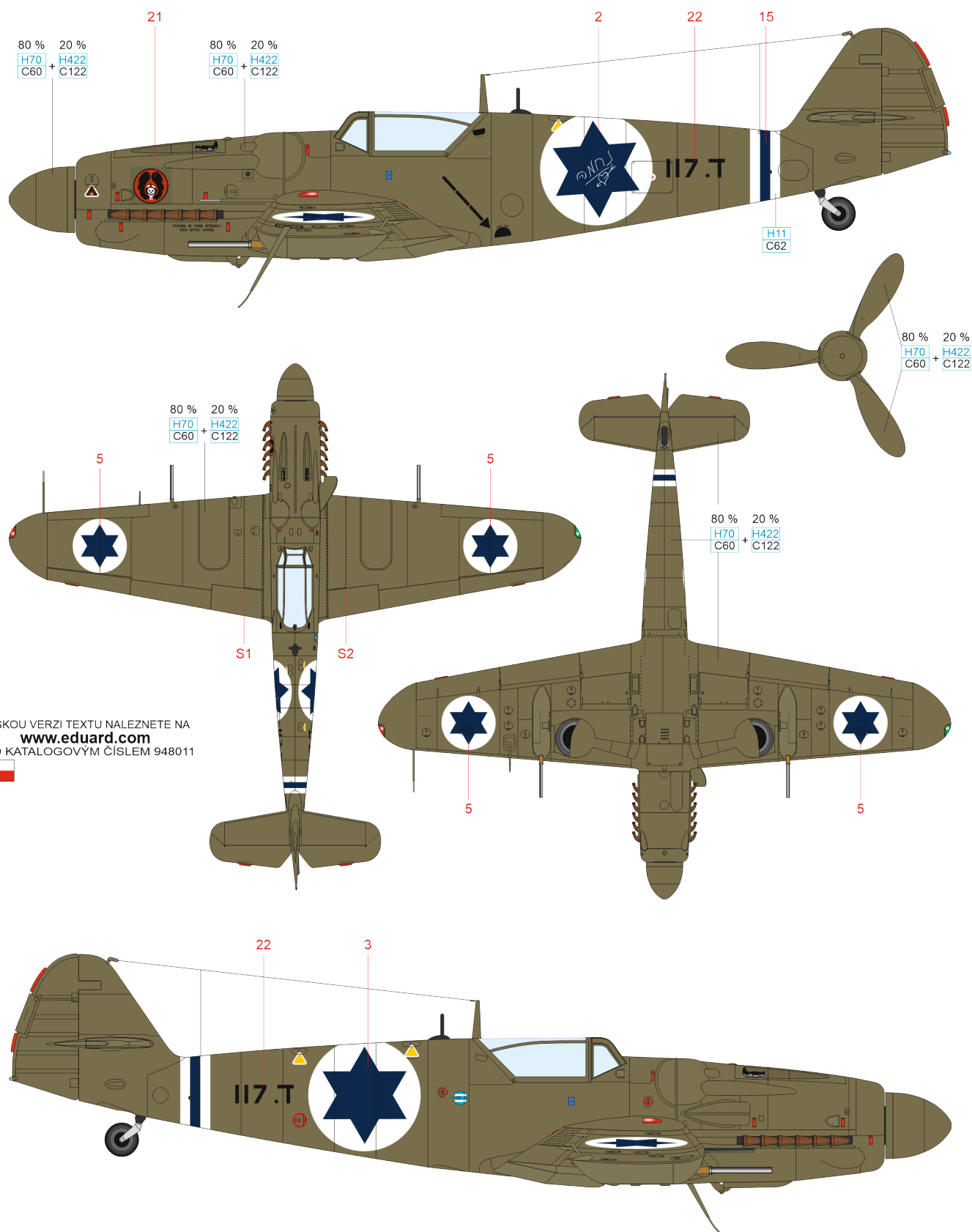


GRAY H70 C60 LIGHT GREEN H422 C122 GREEN H421 C121 RED H3 C3 FLAT WHITE H11 C62

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## B 101 Tayeset, Cheyl Ha'avir, Herzliya, Israel, July-August 1948

One of the "Messers", as these aircraft were dubbed in Israeli use, that survived the First Arab-Israeli War, was this aircraft coded D-117. It was delivered on July 15, 1948, aboard Balak Flight No. 63 and made its first operational sortie on July 21. In the summer of 1948, 101 Tayeset's (Squadron) lead mechanic, Eli Reuveni fell in love with his sweetheart named Nechama. He commemorated this occasion with a photograph in which he posed next to "Messer" D-117 with Nechama's name chalked atop the airplane's Star of David; Nechama went on to become his wife. However, D-117 had a less romantic future, suffering its first accident on August 20, 1948, when Mitchell Flint flipped it over onto its back in a crash landing. Further serious fuselage damage occurred on October 17 when, after being hit by ground fire, Giddy Lichtman made a forced landing at Aqir Air Base. Along with the repairs made to the airframe, D-117 was also fitted with a high-resolution camera to conduct photo reconnaissance missions. In November 1948, the Israeli Air Force changed its alpha numeric aircraft numbering system to a four-digit identification number, and D-117 was renumbered 1901, where 19 stood for the airplane type and 01 for the first airframe on the squadron list.



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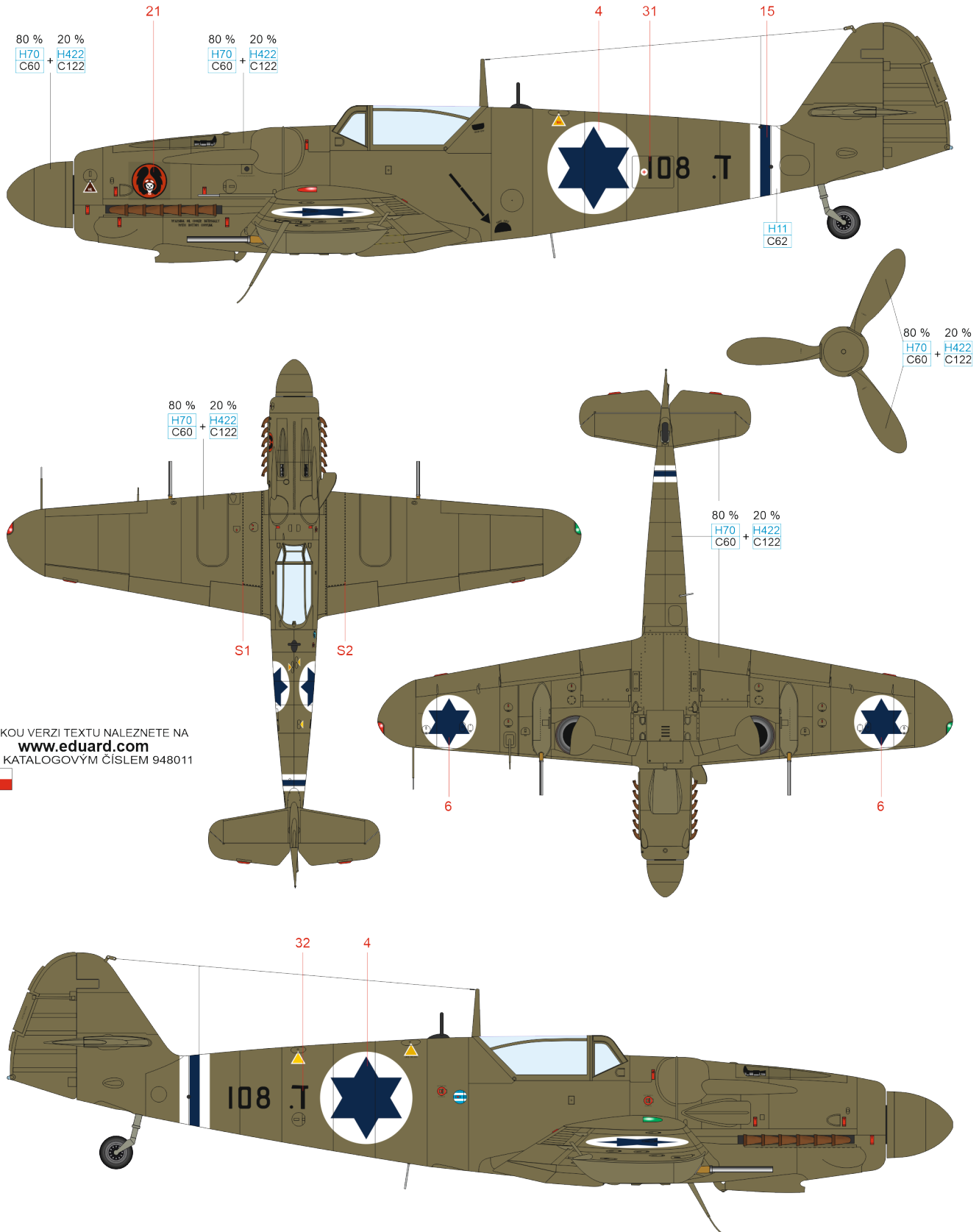


GRAY H70 LIGHT GREEN H422 FLAT WHITE H11  
C60 C122 C62

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# C 101 Tayeset, Cheyl Ha'avir, Herzliya, Israel, July 1948

D-108 was part of the first shipment of S-199s from Czechoslovakia to Israel to be deployed in combat in the Arab-Israeli War of 1948. D-108, as can be inferred from its designation, was among the last examples to arrive in the first series, and thus missed the very first missions of the Israeli S-199s. D-108 was fully assembled and ready for combat within the 101 Tayeset (Squadron) sometime in early June, along with D-107 and D-109. At the time of their assembly, the Israeli Air Force had only five operational S-199s. To avoid Egyptian air raids, the 101 Squadron moved to an improvised dirt airstrip near the town of Herzliya. Mitchell Flint crashed D-108 on August 21 during landing, and this incident put the aircraft out of service for a significant part of the war. The accident also marked the end of Flint's service with the unit. D-108 was returned to service after extensive repairs on November 21, when the 101 Tayeset was transferred to Qastina. At that time, the numbering system in the Israeli Air Force was changed, and D-108 was given the designation 1906. With this designation, it participated in Operation Horev at the end of December 1948. Among other things, it accompanied the Beaufighter TF Mk.X during the attack on El Arish airport on December 24, and the Spitfire D-130 during a photographic reconnaissance mission over Gaza. At the end of the war, it was one of four operational S-199s that survived the Arab-Israeli War and the only one to survive from the first series of S-199s delivered. It was finally scrapped sometime after October 15, 1950.

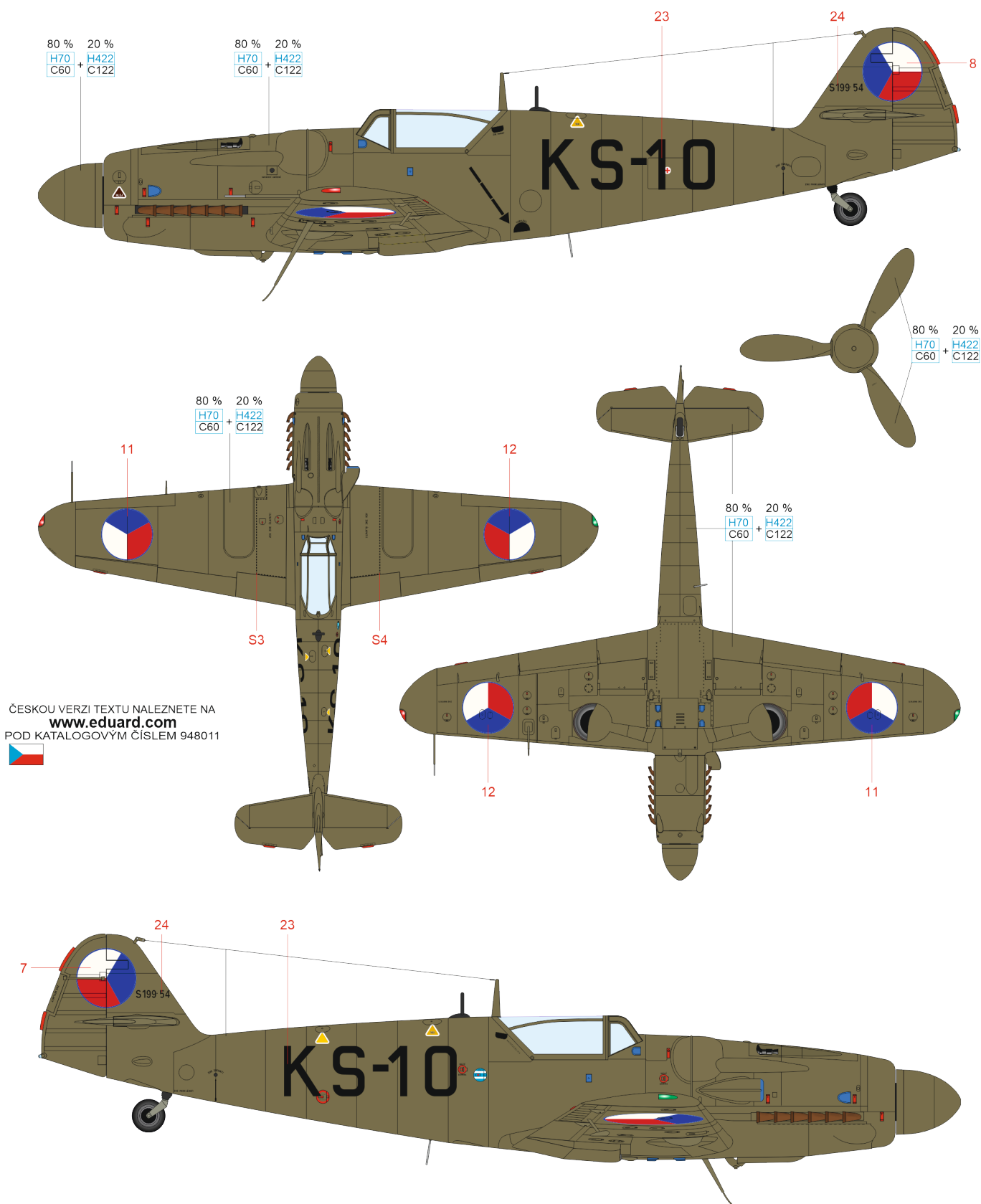


GRAY H70 LIGHT GREEN H422 FLAT WHITE H11  
C60 C122 C62

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# D S-199.54, Sgt. František Novák, Fighter Training Center, No. 2 Squadron, Aviation Regiment 4, Planá u Českých Budějovic, Czechoslovakia, May 1948

After the communist takeover of Czechoslovakia, military pilot defections to the West were nothing unusual. Former RAF members, who either suspected or even knew that they would be persecuted by the communists, crossed the border and many younger pilots also decided to leave the country. One of them was Sgt. František Novák, at that time a trainee of the second class from the Fighter Training Centre (SVS), who fled to then West Germany on May 24, 1948. The aircraft was stored in Munich and, after various obstacles were ironed out, was transported to Czechoslovakia by land in March 1950. From March 31 until October 24, 1950, there was a general overhaul at the Avia factory. Later it served with LP 4 (Aviation Regiment 4). The Avia produced aircraft bore the standard MNO Smalt Avion 2036.02 paint scheme on all surfaces and this aircraft was the tenth Avia factory production piece to be fitted with a heat exchanger instead of the original oil cooler. The canopy was of the older design, and the aircraft did not have machine guns in the wings, nor underwing cannons.



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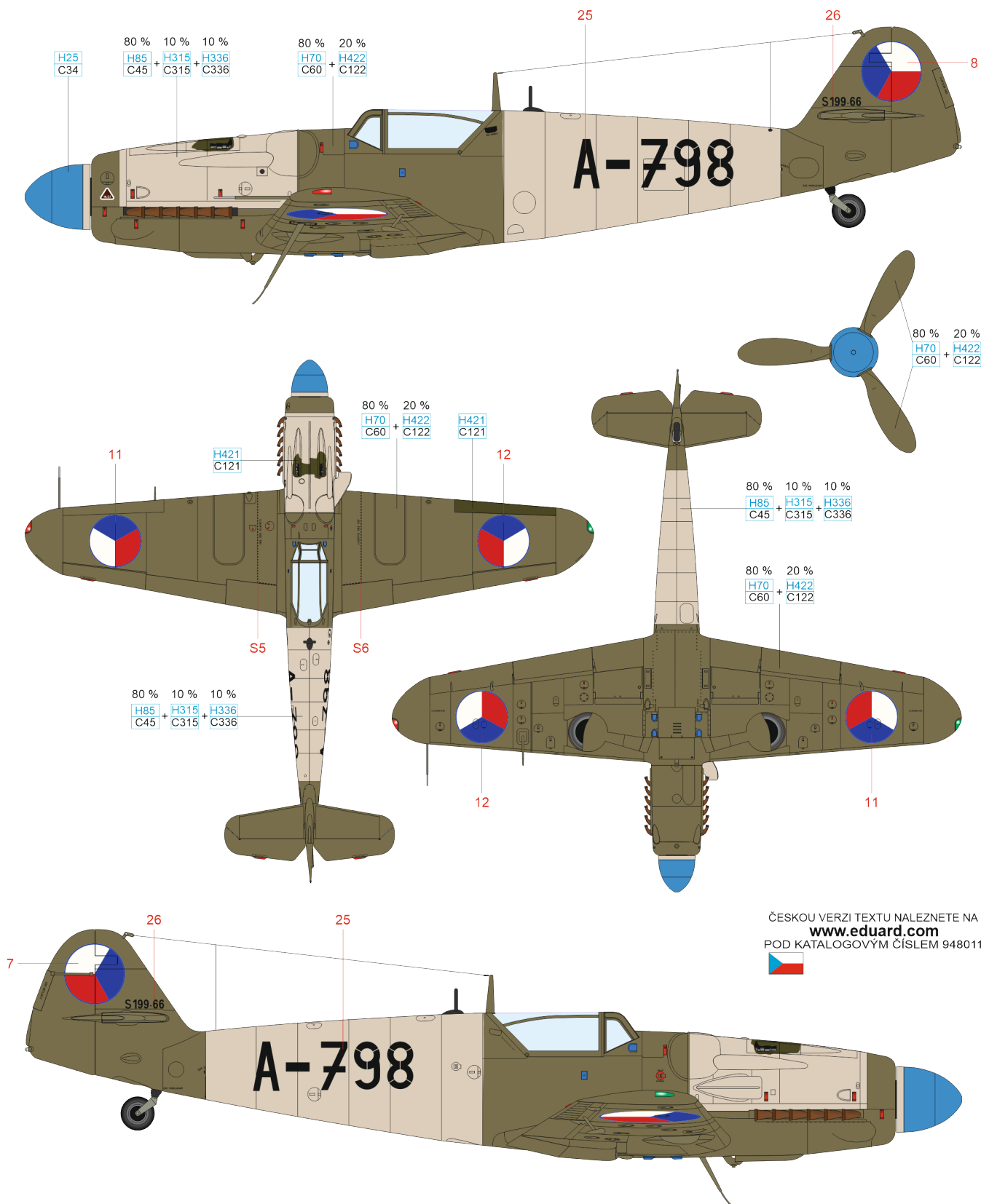


GRAY H70 LIGHT GREEN H422  
 C60 C122

Our special thanks to Michal Ovčáčík for their invaluable input and cooperation.

# E S-199.66, ak. Ladislav Strnad, Air Military Academy, Hradec Králové, Czechoslovakia, June 1950

This aircraft was assigned to Air Regiment 7 on August 4, 1948. On May 10, 1950, it was sent to the LVA (Air Military Academy), where it was damaged during take-off from the Pardubice airfield. A good quality photo of this crashed aircraft exists and shows very interesting coloring, as the rear fuselage and engine cowls are clearly different shade of lighter color compared to the original green. There might be several reasons about this aircraft's colors. We believe there were probably some minor repairs needed on the rear fuselage (or just overpainting of original user's code) and as the LVA probably did not have the standard green color the tan color intended for C-104s was used. As there was also a need to change the engine cowl at some point, the cowl from a dark green aircraft was used and overpainted in the same color as the rear fuselage to keep the aircraft in some color "order". But the new coat chipped around the machine gun barrels and the darker green surfaced there. Also, the right slat is clearly dark green color. The question mark hangs over the national insignia on upper wing surfaces. On the photo it seems like they were not painted there, but it might well be only due to the over exposition of the surface under the direct sun. Interesting is also the obvious absence of most of the stencils. The front of the fuselage and wings were quite worn out, while both green and rear tan part of fuselage looks like new. The engine cowl sports some chipping and repairs in contrast.



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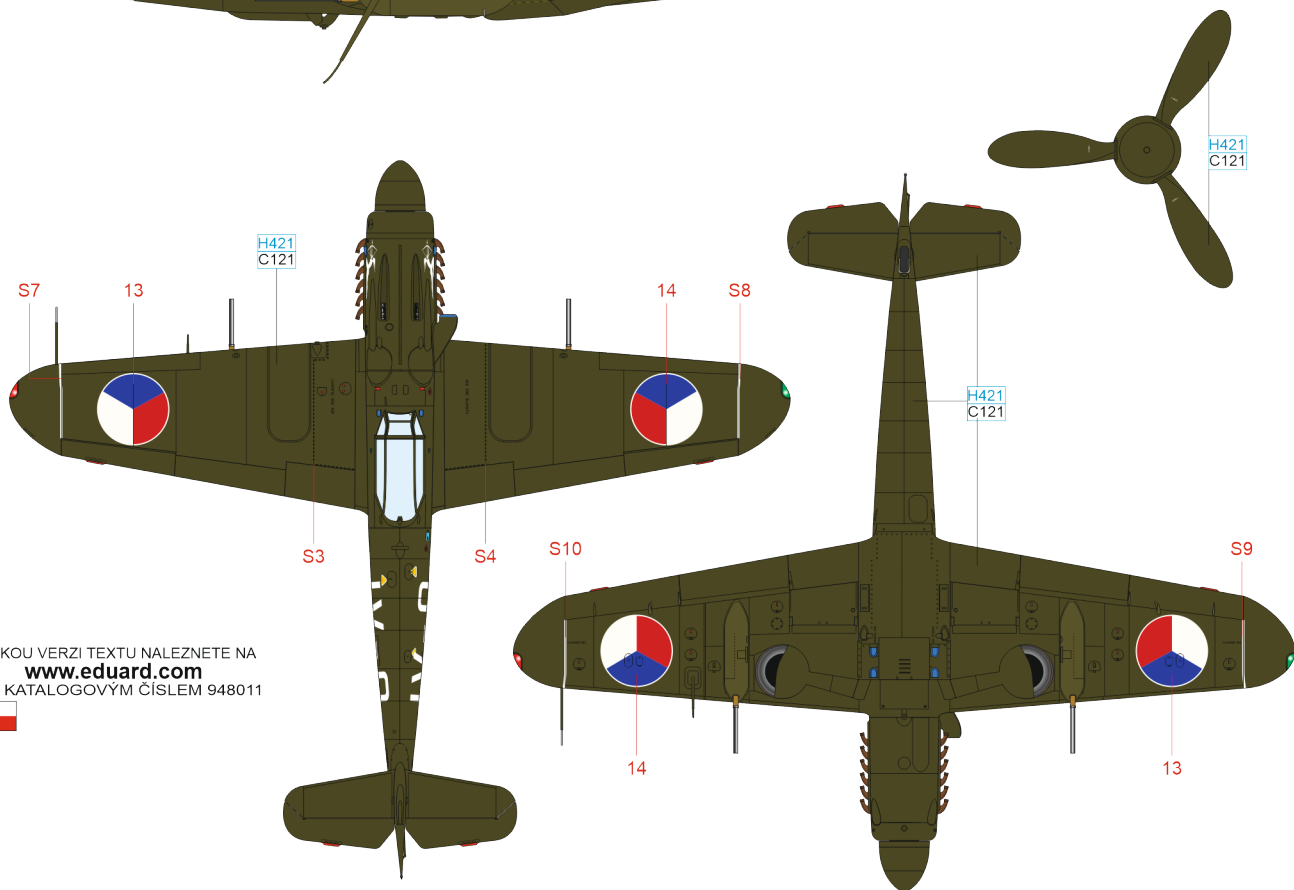
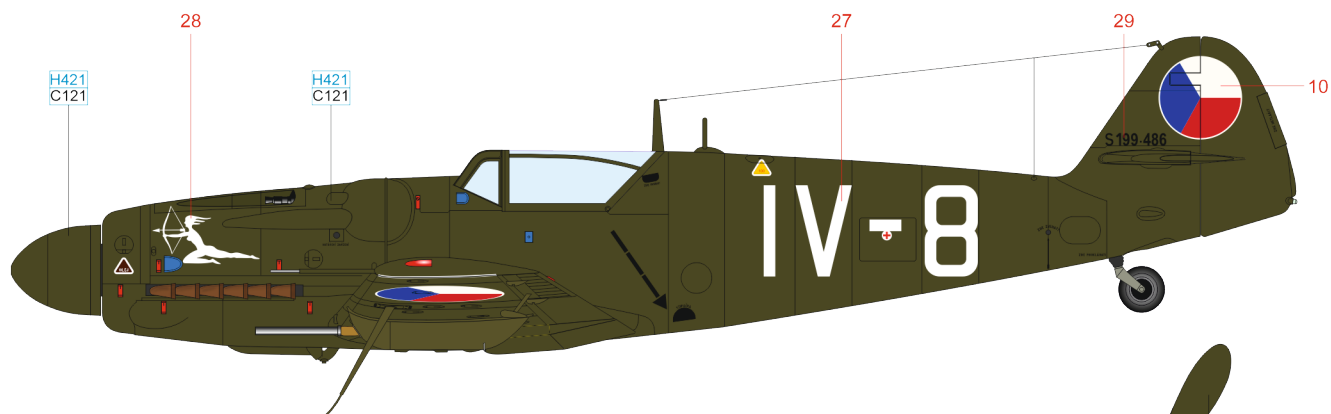
SAIL COLOR	H85 C45	GRAY	H315 C315	HEMP	H336 C336
GRAY	H70 C60	LIGHT GREEN	H422 C122	GREEN	H421 C121
		SKY BLUE	H25 C34		

Our special thanks to Michal Ovčáčík for their invaluable input and cooperation.

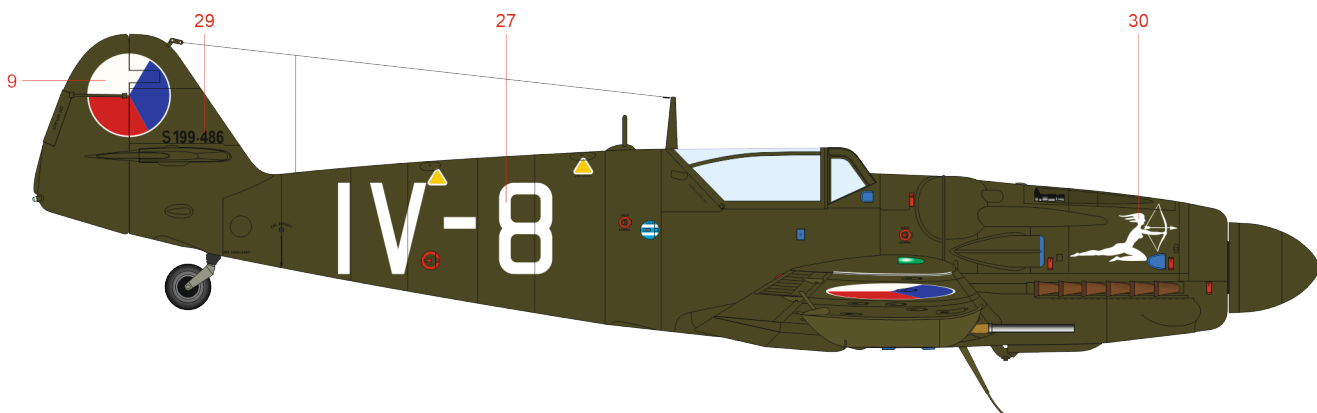
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# F S-199.486, Lt. František Fořt, No. 1 Squadron, Aviation Regiment 7, Brno-Černovice, Czechoslovakia, 1950

This "Mezek" was test flown by factory pilot Antonín Kraus on December 12, 1949. On January 24, 1950, the aircraft was taken over by the military administration and assigned to LP 7 (Aviation Regiment 7) stationed at Brno-Slatina airport on February 7 of the same year. It was coded IV-8 and, according to the memories of veterans and unit logs, it sported a drawing of Diana carrying her bow. The author of the drawing was the fiancée and future wife of the deputy Squadron Commander and Flight Commander František Fořt. According to period witnesses, the same emblem also appeared on the aircraft of two other Flight Commanders, Lieutenants Jaromír Jech and Jiří Váňa. As is mentioned in the unit memoirs, more S-199s were equipped with various emblems, at least for a certain period of time. They are even documented in the said memoirs, but it is not clear to which specific aircraft they refer to. The aircraft was probably painted with darker green paint on all surfaces. At that time, the white of the spinner belonged to the aircraft of Air Division, to which LP 7 and LP 8 (Aviation Regiments 7 and 8) belonged, but not all aircraft were so marked, and IV-8 was probably one of these. There is no photographic evidence, unfortunately.



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GREEN H421 C121

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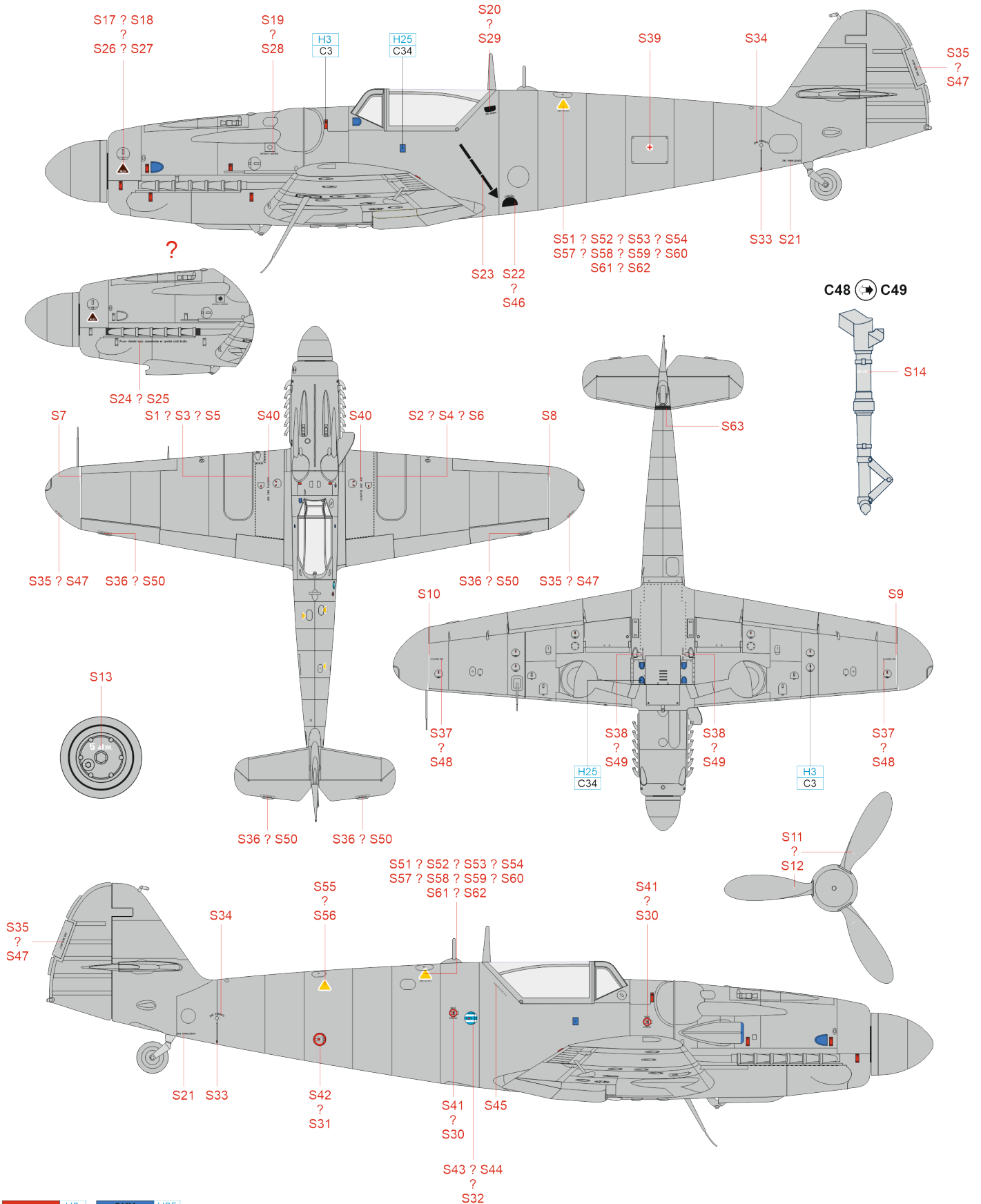
# Avia S-199 ERLA canopy

# STENCILING POSITIONS

Decals S1, S2, S16, S25, S26, S27, S28, S29, S30, S31, S32, S46, S47, S48, S49, S50 for markings A, B, C only.

decal	MARKING
S26	B
S27	A, C

decal	MARKING
S60	D,F
S61	B
S62	A,C



RED	H3	SKY	H25
	C3	BLUE	C34