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LIMITED



Spitfire Story:
Southern Star

INSTRUCTION SHEET

1/48

DUAL COMBO
11157-NAV1

Spitfire Mk.V

technical development



Photo: IWM via Wikimedia Commons

by Vladimír Šulc

In the course of 1940, the Spitfire Mk.I large scale production at Supermarine company has been fine-tuned so it could meet the Air Ministry orders, supply the RAF Fighter Command combat units with the new aircraft and replenish the combat losses. The situation was similar at Castle Bromwich Aircraft Factory in Birmingham which after some initial organizational problems reliably supplied the fighter squadrons with license-built, and, compared to Mk.I, slightly improved Spitfires Mk.II.

Spitfire Mk.Vc (DB-R) of No. 2 Squadron SAAF based at Palata, Italy, carrying a 250lb GP bomb, in flight along the Adriatic Coast while on a bombing mission to the Sangro River battlefront. The aircraft was converted from Mk.Vb version.

In the end of 1940, the new aircraft were arriving at the units in their final weapon and equipment configuration as full-fledged, fully functional combat aircraft. Earlier manufactured airplanes were continuously upgraded with the installation of armor and more modern equipment to meet the standards of the newly manufactured Spitfires. However, during the same time, the modernized Bf 109 versions were arriving at the German Luftwaffe fighter units. The Spitfires were able to keep up the pace with Bf 109E-7 quite successfully when they appeared in the fall 1940, but with the arrival of Bf 109F-1 and F-2 in the end of 1940 and beginning of 1941, the tables turned in favor of the Germans. In order to counter the growing German technical supremacy, the Spitfires' performance had to be improved rapidly.

Merlin 45

The traditional way to increase performance is to install a more powerful engine. After trials with the Merlin XX engine, installed in the prototype of the Spitfire Mk.III, Rolls-Royce offered a viable and quick solution in late 1940, the concurrently developed and simpler to manufacture Merlin RM5S engine, later designated Merlin 45. It featured one-stage; single-speed compressor optimized for high altitudes. Its output at 5,400 meters was 1,210 hp (902 kW), some sources even state a rather optimistic, and to tell the truth, less probable, output of 1,440 hp (1,074 kW). The Merlin 45 was the same size as the Merlin III powering the Mk.I Spitfires, and its design allowed the Merlin III to be upgraded to the Merlin 45 by changing the supercharger. This facilitated the simple installation into the freshly built Spitfire Mk.I and Mk.II airframes and the conversion of the already manufactured aircraft as well. RR company promised to supply 300 Merlin 45 units by March 1, 1941, and further 200 units by April 1.

The first airframe to receive the new engine, modified from a Merlin XX, was supposedly Spitfire Mk.I K9788 on December 26, 1940, in Boscombe Down. It was followed by PR Mk.III X4334, converted into the photo-reconnaissance

version from a Spitfire Mk.I, which took to the air on January 13, 1941, at the Rolls-Royce factory airport in Hucknall. Spitfire Mk.I N3053, another conversion, was also test-flown in Hucknall on February 13, 1941. Right after their initial flights both airplanes were flown over to Boscombe Down for further testing. A maximum speed of 593 kph at 6,100 meters was recorded during the flight trials, climbing time to this altitude was 6 min and 12 seconds and the operational ceiling 11,590 meters. The trials also brought out the problems with the De Havilland constant-speed propellers as oil of their control system was freezing at high altitudes. There were troubles with Mk.II oil cooler as well as it was not efficient enough for the more powerful engine. Even though this was considered an interim solution, as the Spitfire Mk.III production was still being planned, the order for new Spitfires was placed, or, better said, the program for converting Spitfires Mk.I and Mk.II into Spitfires Mk.V was ordered.

Spitfire Mk.Va and Mk.Vb

While the Spitfires Mk.V, re-built at Rolls-Royce, were trialed, the program of converting Spitfires Mk.I was under way at Supermarine. In the middle of March 1941, another aircraft, X4922 built in Eastleigh at Spitfire Mk.I assembly line, arrived at Boscombe Down. It already featured Merlin 45 and was test-flown on February 7. During the trials it was fully armed and equipped and reached the maximum speed of 603 kph at the altitude of 6,344 meters, to which it climbed in 7.1 minute. The operational ceiling was 11,499 meters. In Eastleigh, in the second half of February, a total of 23 Spitfire Mk.I airframes, mostly cannon version Mk.Ib, received Merlin 45, thus becoming the first Spitfires Mk.Vb. Several airplanes were also produced with eight wing machine guns and became the first Spitfires Mk.Va.

verting current Mk.Ibs, sent over from the unit, to Mk.Vb standards, No. 92 Squadron was fully equipped with "fives" only in the beginning of April. During March, the Supermarine assembly lines were switching to Spitfire Mk.V production and by the end of the month 12 Mk.Vb and 26 Mk.Va were built, with Mk.I still in production. In April the Mk.V production was at the full speed resulting in 36 Mk.Va and 22 Mk.Vb completed. The last manufactured Mk.I was R7257, also produced in April. By the end of May, the RAF squadron Nos. 54, 74, 603 and 611 were equipped with new Mk.V. The production at Supermarine ran until October 1942 and its final output was 1,352 airframes out of which 94 were versions Mk.Va, 780 Mk.Vb and 478 Mk.Vc.

The CBAF (Castle Bromwich Aircraft Factory) launched the Spitfire Mk.V production in June 1941 while it was fulfilling the contract for 1,000 Mk.IIs, signed on April 12, 1939. Gradually the company received another eight orders to produce Spitfires Mk.V, of which the last one, from May 1942, largely transitioned to the manufacture of modernized Spitfires Mk.IX. Until the end of April 1943, the total production at CBAF reached 3,003 Spitfires Mk.Vb and 1,474 Spitfires Mk.Vc.

Since the summer 1943, the Mk.V production was under way at Westland company located in Yeovil in county of Somerset. Westland manufactured various versions of Spitfire Mk.V until November 1943 and ultimately delivered a total of 140 Mk.Vb and 495 Mk.Vc.

Spitfire Mk. V modernization

During the two and half years of Spitfires Mk.V production, the airframe was gradually developed and improved. Already at the beginning of manufacture they featured thicker armor in comparison to Mk.I and Mk.II. The oil cooler was soon replaced with a larger one featuring a circular intake which was

Three Spitfires LF Mk.Vb of No. 244 Wing RAF based at Bu Grara, flying in close starboard echelon formation off the Tunisian coast after escorting light bombers on a sortie to Mareth. AB502 (IR-G) in the foreground, is the personal aircraft of Wing Leader Ian Richard „Widge“ Gleed. All three are fitted with Aboukir air filters and have clipped wings in order to assist low-level performance.



Besides the engine, the equipment of these aircraft corresponded to Spitfire Mk.I standard including the smaller oil cooler with U-shaped intake which was the cause of higher oil temperature of the first Spitfires Mk.V and posed a certain risk of engine overheating. The first unit to receive Spitfires Mk.Vb was No. 92 Squadron commanded by S/Ldr Jamie Rankin, which up until then was flying Spitfires Mk.Ib. The first Spitfire Mk.Vb X4257 was delivered to the unit on February 16, but since Rolls-Royce in Hucknall was gradually con-

retroactively installed on the first batch of Spitfires Mk.V, converted from Mk.I and Mk.II, and became one of the features distinguishing Spitfires Mk.V. At the same time the armament of eight 0.303 Browning machine guns was abandoned as it was found ineffective. Only 94 Spitfires Mk.Va with such armament were manufactured, while 6,370 Spitfires Mk.Vb and Mk.Vc were armed with two 20mm Hispano cannons and four 0.303 Browning machine guns left the assembly lines.

Radio equipment

The first Spitfires Mk.V converted from Spitfires Mk.I were still fitted with TR.9D shortwave radios with a wire antenna stretched between the antenna masts behind the cabin to the top of the rudder. The new-built production aircraft were already equipped with the new TR.1133 and later TR.1143 VHF radios, which replaced the older units from the summer of 1941. The TR.1133 and 1143 had no wire antenna, so the serial aircraft equipped with them had the antenna mast on top of the rudder deleted. Similarly, the first of the converted Mk.Vs had the IFF R.3002 identification Friend or Foe device, soon replaced by the newer IFF device ARI 5000. Both had wire antennas between the fuselage sides and the leading edge of the elevator. The IFF antenna on later Spitfires was located on the lower surface of the right wing half. From November 1941, the A.1271 radio navigation system for radio beam guidance on landing was also gradually introduced.

Engine modifications

Several engine versions powered Spitfires Mk.V. Besides the essential Merlin 45, the high altitude Merlin 46 with a more powerful compressor providing higher manifold pressure at high altitudes. But the original assumption that the combats with Luftwaffe will move up to higher altitudes did not materialize and quite the opposite happened, many missions then took place at lower altitudes. So, the low altitude version Merlin 45M was developed and tuned for the optimal performance at low altitudes.

from the radiator was not sufficient so the cannons were freezing at higher altitudes. The heating was therefore augmented by warm air heated in the exhausts. A pipe was going through the exhausts and continued from the last one through the fuselage in front of the fuel tank, then running inside the fuselage to the leading edge of the wing and on to the guns. These pipes are a feature of the Spitfires Mk.Vb. The Spitfires Mk.Vc received electric heating for the armament, so these heater pipes should be absent on their exhausts. However, in fact you can find them on many photos of Spitfires Mk.Vc. These are probably Mk.Vc converted from Mk.Vb by installing new C wings on older Mk.Vb Spitfire fuselages.

Ailerons

There were continuing problems with the fabric-covered ailerons on Spitfires Mk.V, dating back to Spitfires Mk.I and Mk.II. Even though the all-metal ailerons were designed and tested in the end of 1940, in the middle of 1941 they were still not installed as a standard on the aircraft leaving the assembly lines. Therefore, not only Mk.Vs converted from Mk.I and Mk.II featured fabric-covered ailerons but the first mass-produced "fives" as well. Only after the Air Ministry interference in June 1941 the all-metal ailerons were introduced into the mass production which significantly improved the dog-fighting ability of the Spitfires that were equipped with them. This case shows the cumbersome process of implementing technical improvements into a large-scale production. The situation was so serious, and nonsensical, that the American



Two clipped-wing Supermarine Spitfires Mk.V of South African Air Force No. 40 Squadron serving in a close air support role patrol over Tunisian battlefield and ready to be called in for an air strike by the Army.

Photo: IWM via Wikimedia Commons

The carburetor development is a story on its own. The original drawback of the Merlin III carburetors SU A.V.T.40, during negative G maneuvers an intermittent fuel supply interruption occurred, was partially eliminated by means of RAE restrictor a.k.a. Tilly's orifice, named after its inventor, Beatrice Shilling. But it was not a perfect solution. The problem was fully resolved by introducing a membrane-type carburetor designed by Rolls-Royce and introduced into the production in 1942. They were installed in Merlin 50 and 55 powering Spitfires Mk.Vc.

Propeller

Spitfires Mk.V manufactured at mother company Supermarine mostly featured De Havilland Hydromatic Type 5/29A, 5/39, 45/1 and 45/4 propellers which differed primarily in a pitch. These propellers demanded careful maintenance and pitch control assembly tended to freeze at high altitudes. The same propellers were installed on Spitfires Mk.V manufactured by Westland. Spitfires Mk.V manufactured by CBAF were traditionally equipped with more reliable and popular propellers Rotol RX5/14 and RX5/24 with metal blades, later with propellers RX5/10 with wooden blades Jablo of a slightly smaller diameter (3.12 meters compared to 3.28 meters of metal propeller).

Exhausts

The first Spitfires Mk.V had the same flat oval mouth exhausts as the Spitfires Mk.I, which were replaced fairly quickly by the new flattened fishtail exhausts. Several variants of these exhausts are known. With the introduction of the 20mm Hispano guns into the armament of the Spitfires Mk.Vb, it became apparent that the current heating system of the cannons by warm air brought

units equipped with Spitfires Mk.V supposedly replaced the fabric-covered ailerons with plywood-covered ones.

Spitfire Mk.Vc

Spitfire Mk.Vc represented the logical combination of all gradual modifications of the original Spitfire design. Besides the modernized bulged sliding canopy and armored glass integrated internally into the windshield, the most important and fundamental change was a newly-designed and strengthened wing (called the Universal wing or c type). Traditionally, the ability to house variety of weapons installations is considered a main advantage. These options were eight machine guns, which was practically never installed on Spitfires Mk.Vc, two cannons and four machine guns or four cannons (variant only possible in the new C type wing but c isn't the designation of this option). In fact, out of all these, variant with two cannons and four machine guns was absolutely dominant. Four cannons installation was rarely used because heavy cannons had significantly negative impact on the aircraft flight characteristics so if the four cannons had been installed at the factory regardless, usually two of them, mostly at inner locations, were removed at the unit level. An important change was the introduction of the belt-fed Hispano II cannons allowing for larger ammunition load (120 bullets per cannon as opposed to 60 bullets with the older, drum-fed Hispano Mk.I (as on the earlier b type wing). These cannons were also less prone to jamming. The visual indication of their installation was a missing bulge under the cannon well which on Spitfire Mk.Vb appeared in two forms, straight, symmetrical on the older airframes and kidney-shaped, asymmetrical on the newer aircraft. In comparison, the upper bulge above the cannon well on Mk.Vc appeared in at least three diffe-

rent shapes based on the anticipated armament variant and was also subject to a certain improvisation at the unit level. Another fundamental change was the landing gear re-design, featuring strengthened gear legs' attachments and increased rake, moving the wheels 5 cm forward in comparison to the older Spitfire versions. This solution improved the aircraft stability during taxiing and ground maneuvers and was visually recognizable by a new, elliptical wheel well shape. Undercarriage retraction was already standard on all Mk.V Spitfires with a hydraulic pump driven by the engine. The wings and fuselage design were strengthened by the application of thicker sheet metal skin and later Mk.Vc batches featured flush rivets on the rear fuselage. The later aircraft also featured the horizontal tail surfaces with modified weight balance, pressurized fuel tanks, submersible fuel pump in the bottom tank and six single exhaust pipes on each side of the engine. Later Spitfires Mk.Vc batches were almost exclusively powered by Merlin engines series 50 and 55/56 with membrane-type carburetor. Moreover, Merlin 55/56 featured the separate piston blocks. Their specific versions were distinguished by compressors tuned for the optimal output at various operational altitudes.

Short wing/low level Spitfires LF Mk.V

In the course of 1942, the number of both defensive and offensive, low altitude missions increased. It led to the requirement to modify Spitfire Mk.V design in order to optimize their low altitude performance. Low level Spitfires LF Mk.Vb and LF Mk.Vc received Merlin engines series M (Merlin 45M, 50M and 55M)

behind the cockpit and a 170gal drop tank was used. This combination allowed an extended range to 2,615 km at the maximum altitude of 4,575 m.

Tropical filters

In the dusty tropical and sub-tropical environments, the engine was subject to potential damages caused by sucked-in dust. To lower this risk Vokes company designed a voluminous, fully covered filter which formed a typical chin under the aircraft nose. The worsened aerodynamics together with the lower pressure of the entering air on such modified aircraft resulted in the maximum speed drop by approximately 12 kph, which was actually better value than the anticipated drop by 37 kph. These tropicalized versions were quite widely used in both Mediterranean and Far East theaters of operations. Tropicalized airplanes undergoing maintenance at No. 103 Maintenance Unit in Egyptian Aboukir, received the Aboukir type filter manufactured by this unit. They were better aerodynamically shaped and featured a louver which opened the filter on the intake only at critical flight stages when larger dust volume could be sucked in. Two versions of this filter are known. The majority of aircraft equipped with Aboukir filter were of Mk.Vc version and in the course of modifications at No. 103 MU usually received the clipped wingtips and Rotol propellers as well.

The shortened wingtips fitted in Aboukir had a different shape compared to the conventional shortened wingtips of the LF Mk.Vb and Mk.Vc versions and did not have position lights fitted. Some aircraft retained the original wing



Squadron Leader Michael Rook, commanding officer of No. 43 Squadron RAF, who was noted as the tallest pilot serving with the RAF at the time, poses with his Supermarine Spitfire Mk.Vc (JK101), FT-Z, at Jemappes, Algeria. The aircraft is fitted with the Vokes tropical filter.

Photo: IWM via Wikimedia Commons

with smaller compressor diameter which gave the engine the highest output at low altitudes. In case of Merlin 45M it was 1,585 hp (1,182 kW) at 838 meters altitude. Another modification was the wing's strengthening design by means of two strips on the wing upper surfaces above wheel wells area. Some of the Spitfires LF Mk.V received "clipped wings", in fact shorter wingtips reducing the wingspan to 9.8 meters. This modification improved the rate-of-roll and moderately increased the maximum speed. The wingtips varied, both short and long ones could be installed. Therefore, the short wingtips do not decidedly identify the LF version.

Auxiliary fuel tanks

There were several types of auxiliary tanks of different capacity developed in order to extend Spitfire Mk.V range. The smallest one was 30gal (136 liters) tank introduced into service in September 1941 extending the range to 1167 km. It was followed by a larger, 45gal tank (204.5 liters). Both tanks were of so-called blister-type (also known as slipper-type) referring to the tank's curved outline on the bottom and upper flat surface mating with fuselage and wing's center-plane. Both were droppable. The cylinder-shaped 45gal tanks were also used. In Malta, 44gal (200 l) cylindrical tanks from Hurricanes Mk.II were used, attached in pairs, next to each other under the fuselages. In the end of 1941, 90gal (409 l) non-droppable fly-over tank was introduced extending the range to 1,988 km. In 1942 even 170gal (773 l) fly-over tank arrived extending the range to 2,334 km, however at the cost of significantly worse flight characteristics. Both of these tanks were of the blister-type, there was also a cylindrical 170gal fly-over tank. In the actual operations, since the middle of 1942, the combination of 29gal (132 l) tank mounted in the fuselage

design with classic wingtips, and aircraft with extended wingtips for high altitude operations, later used on the Spitfires HF Mk.VIII, are also known.

In combat

The Mk.Vb and Mk.Vc tropical Spitfires operated mainly in southern areas with higher dust levels. Their first operational deployment was the defense of Malta and the landings in North Africa, Operation Torch. Tropical Spitfires were transported to Malta aboard various aircraft carriers during several logistics operations. The aircraft took off from aircraft carrier decks within flying distance to Malta and landed at airfields in Malta. In the defense of the island, a strategic point in the Mediterranean, tropical Spitfires Mk.V played a real key role.

Similarly, during Operation Torch, the Allied landings in North Africa, Spitfires provided indispensable air support to the landing troops. In the initial phase of the landings, Spitfires took off from Gibraltar, but within the first day they were landing at captured airbases in Algiers. Operation Torch also involved the USAAF's Mk.V Spitfires of the 31st and 52nd Fighter Groups. In the fighting on both fronts in North Africa theatre of operations, the tropicalized Spitfires Mk.V played as indispensable a role as they did in Malta. After the end of operations in North Africa and the Allied landings in Italy, units armed with tropical Mk.V Spitfires continued operations over Italian territory. They were also delivered to the Italian Air Force fighting on the Allied side, to the French Air Force, to Turkey and the Soviet Union and are also known in the colors of the Yugoslav Air Force and South African Air Force (RSAAF). In 1943, tropicalized Spitfires Mk.Vc were also delivered to the Australian Air Force, RAAF, in whose ranks they served in the defense of Australia against Japanese raids and later in operations over New Guinea and other areas of the Indian and Pacific Oceans.



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 lepidla 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
NABARVIT

PARTS



DÍLY



TEILE

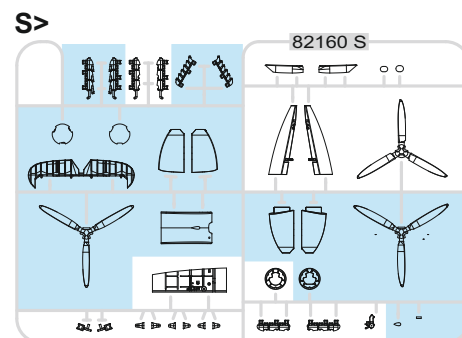
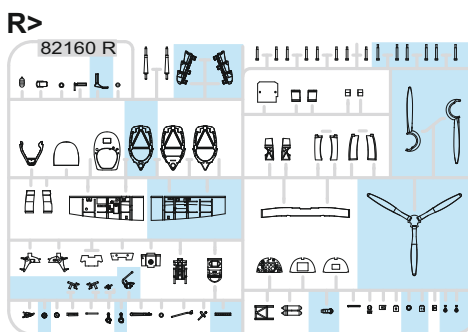
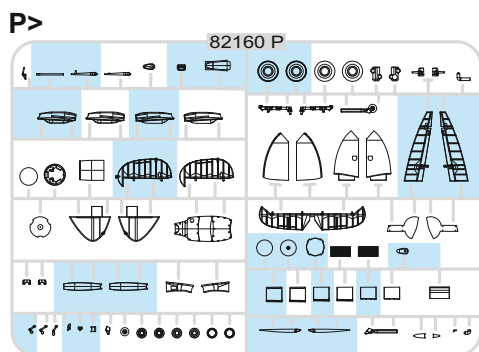
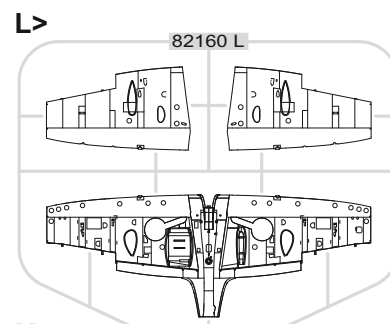
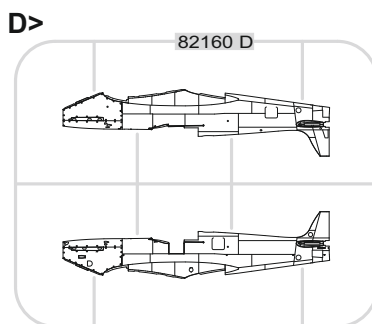
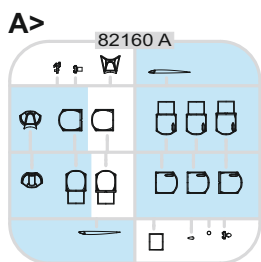


PIÈCES



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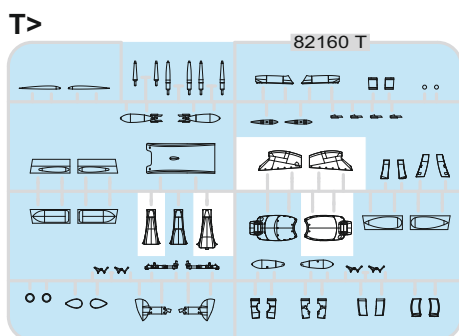
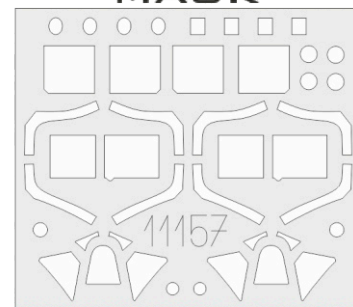
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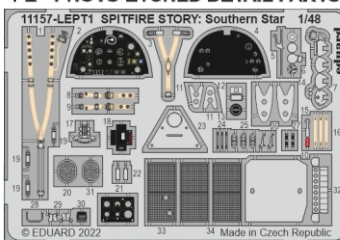
eduard BRASSIN RP - RESIN PARTS



eduard MASK



PE - PHOTO ETCHED DETAIL PARTS



-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



PEINTURE

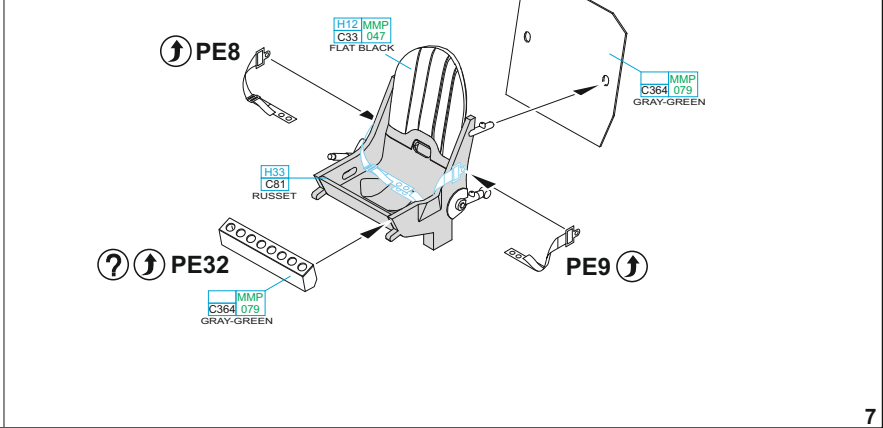
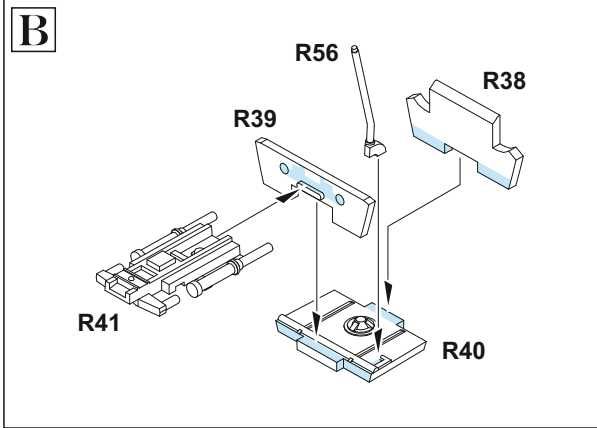
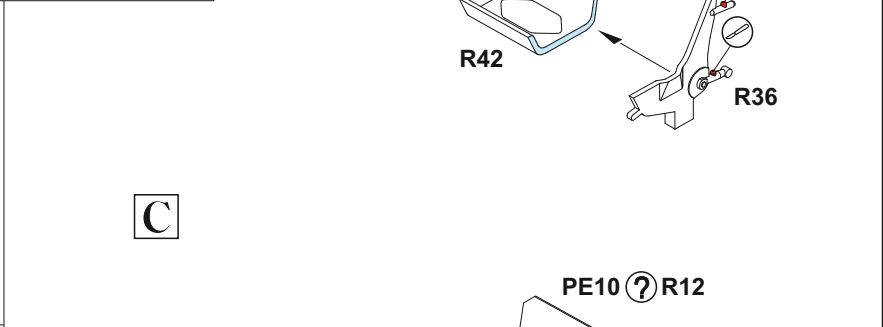
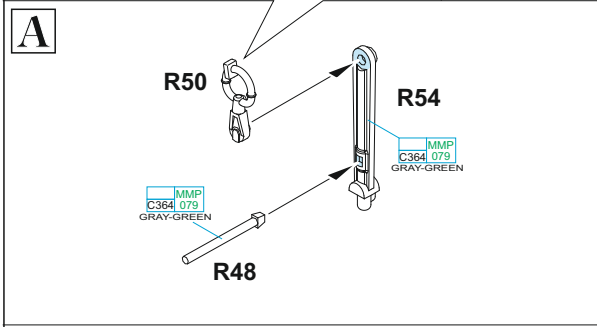
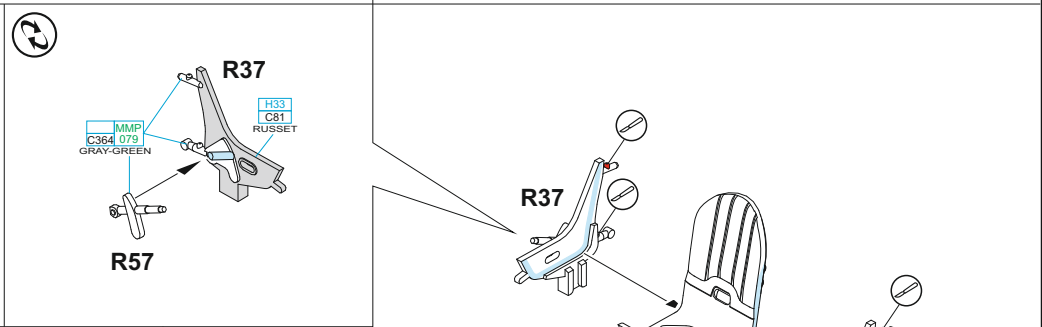
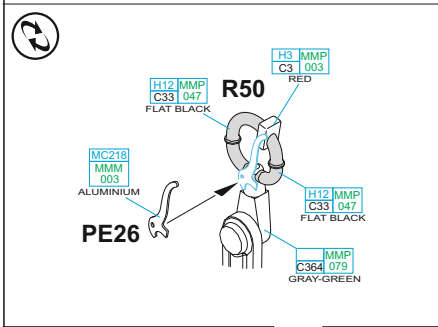
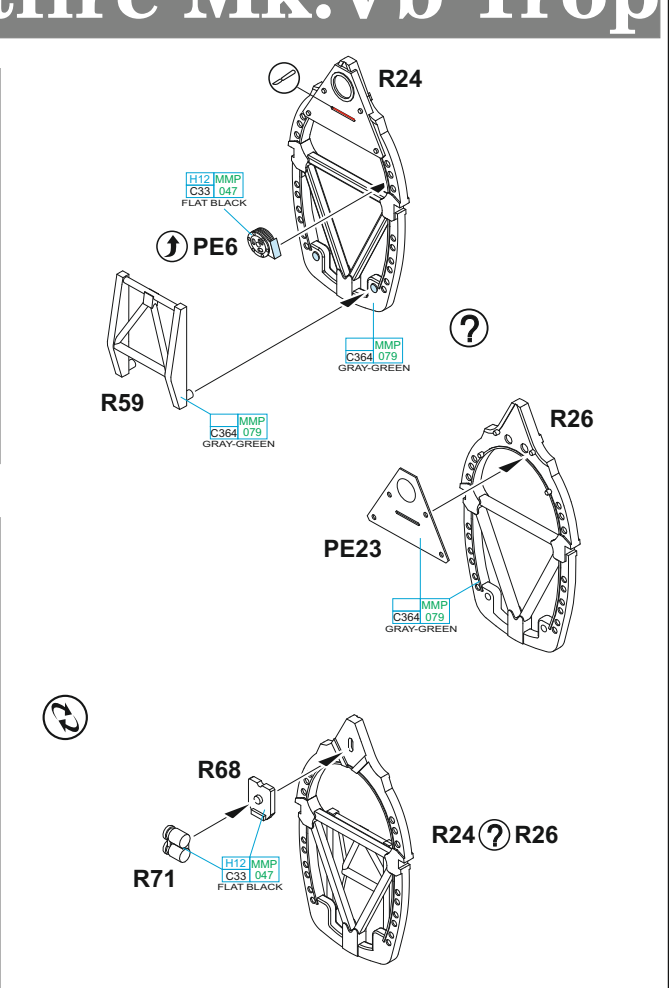
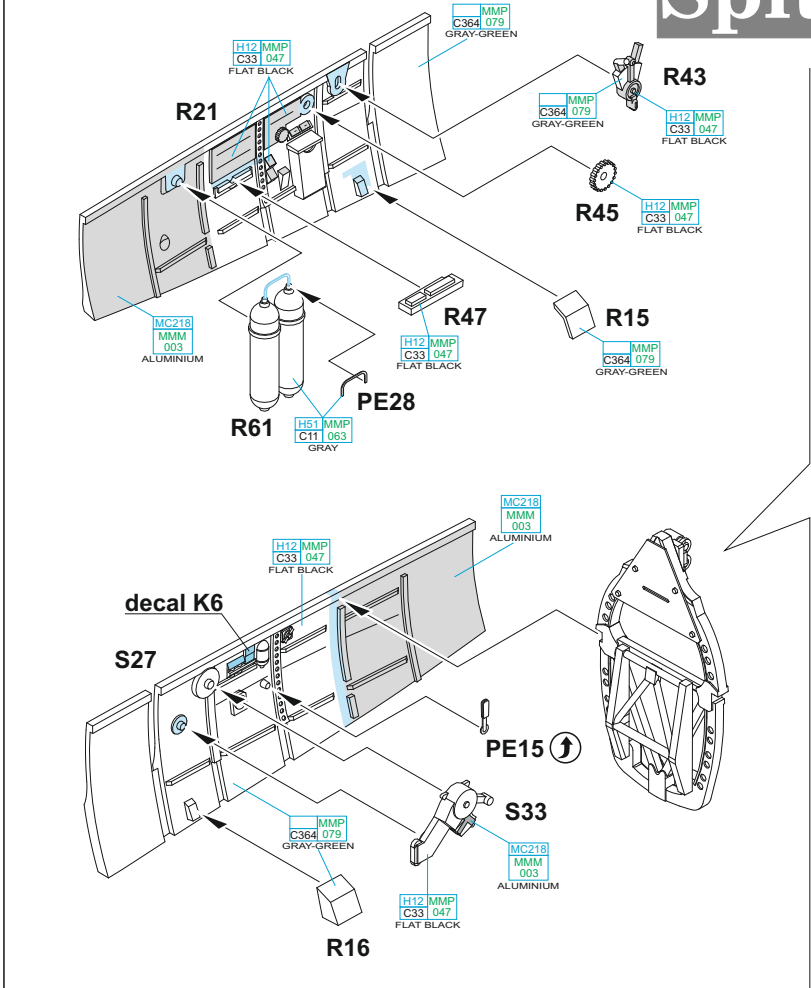


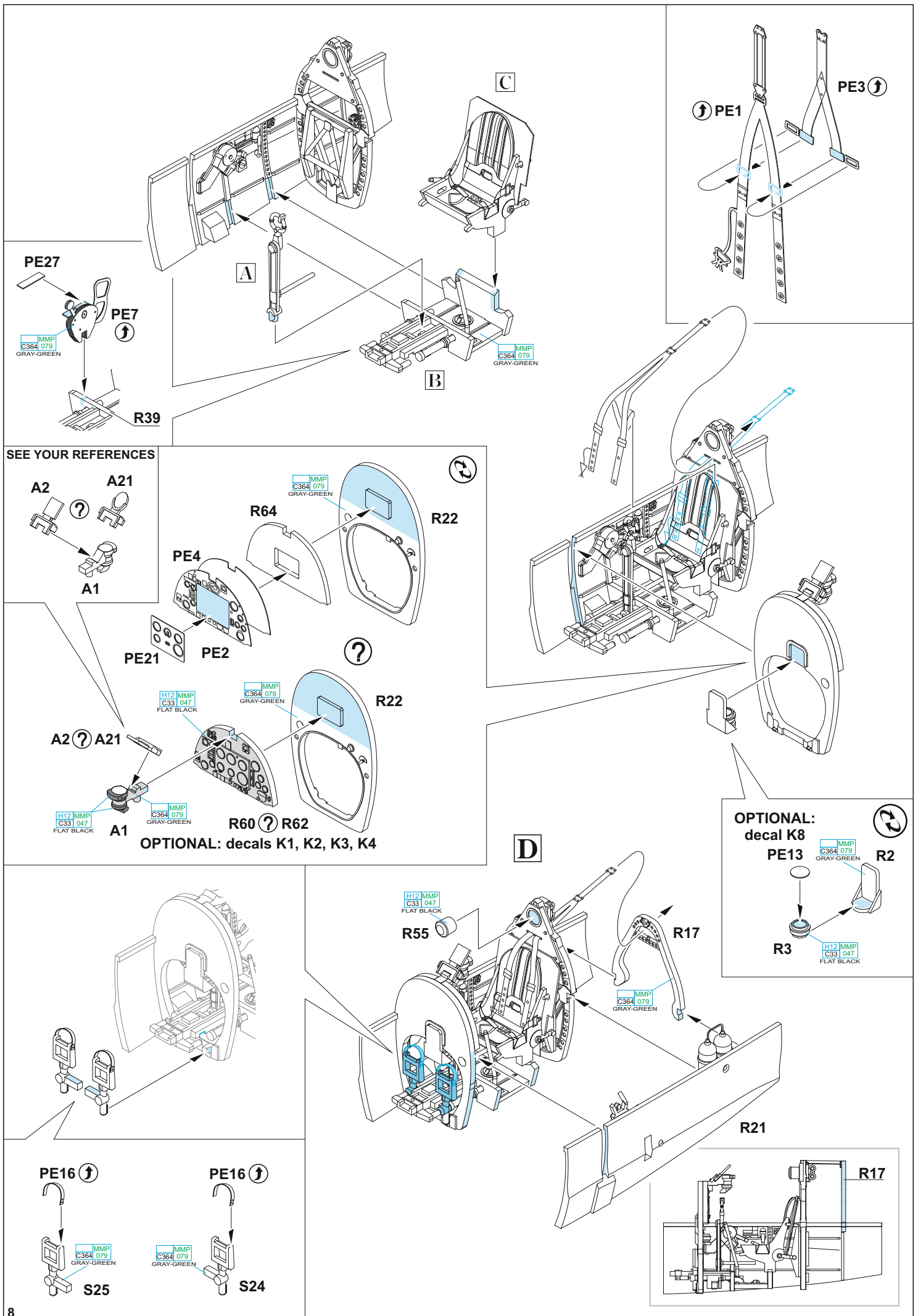
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| GSI Creos (GUNZE) | | MISSION MODELS | |
|-------------------|----------|----------------|-----------------|
| AQUEOUS | Mr.COLOR | PAINTS | |
| H3 | C3 | MMP-003 | RED |
| H4 | C4 | MMP-007 | YELLOW |
| H8 | C8 | | SILVER |
| H12 | C33 | MMP-047 | FLAT BLACK |
| H33 | C81 | | RUSSET |
| H51 | C11 | MMP-063 | LIGHT GULL GRAY |
| H71 | C21 | MMP-076 | MIDDLE STONE |
| H72 | C369 | MMP-078 | DARK EARTH |
| H90 | C47 | | CLEAR RED |

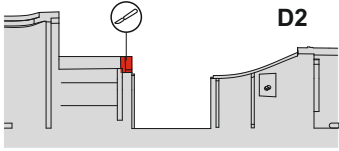
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|-------------------------|----------|----------------|-------------------|
| AQUEOUS | Mr.COLOR | PAINTS | |
| H94 | C138 | | CLEAR GREEN |
| H330 | C361 | MMP-077 | DARK GREEN |
| | C362 | MMP-093 | OCEAN GRAY |
| | C370 | MMP-092 | AZURE BLUE |
| Mr.METAL COLOR | | METALLICS | |
| MC214 | | MMM-001 | DARK IRON |
| MC218 | | MMM-003 | ALUMINIUM |
| Mr.COLOR SUPER METALLIC | | METALLICS | |
| SM201 | | MMC-001 | SUPER FINE SILVER |

Spitfire Mk.Vb Trop

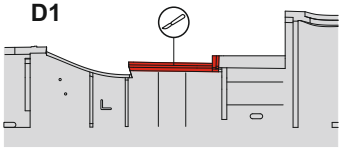




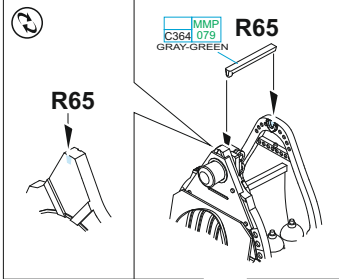
7 FOR CLOSED CANOPY ONLY



D2

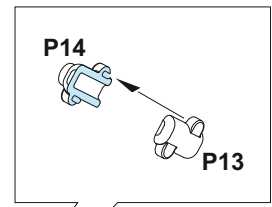


D1



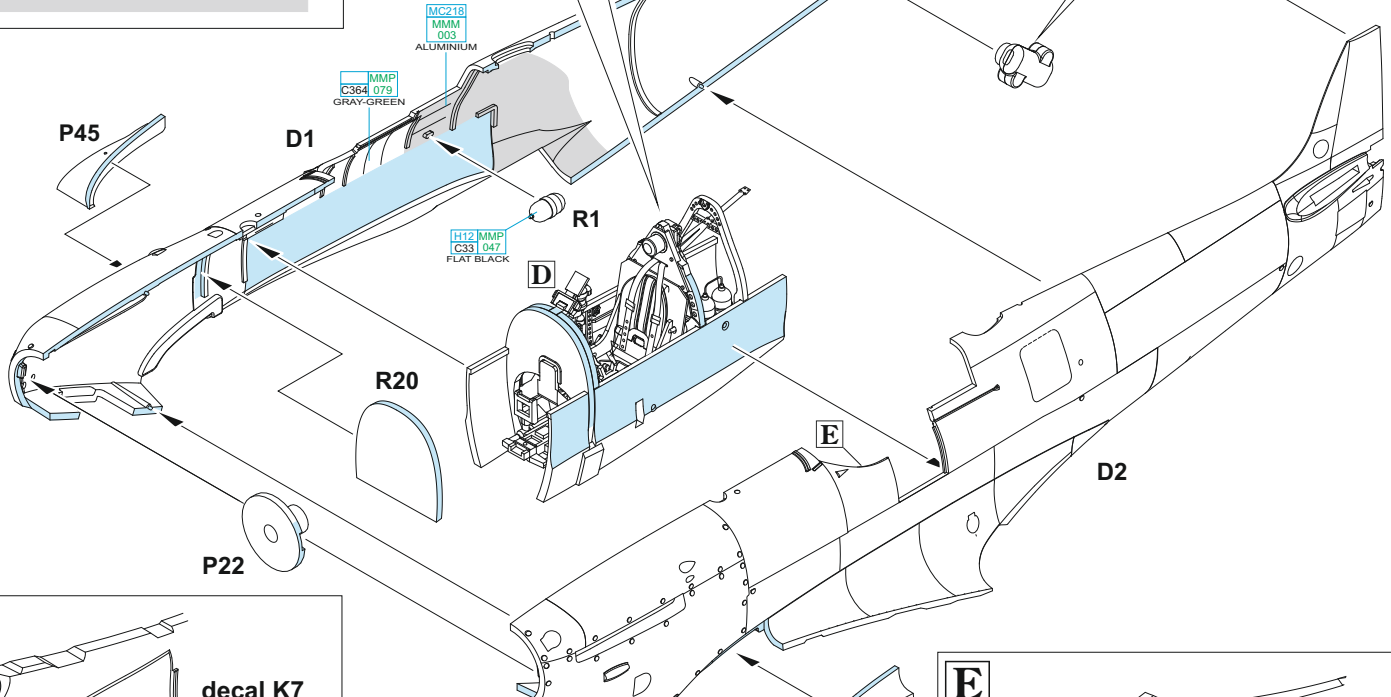
R65

R65



P14

P13



P45

D1

MC218
MMM
003
ALUMINIUM

MMP
C364 079
GRAY-GREEN

H12 MMP
C331 047
FLAT BLACK

R1

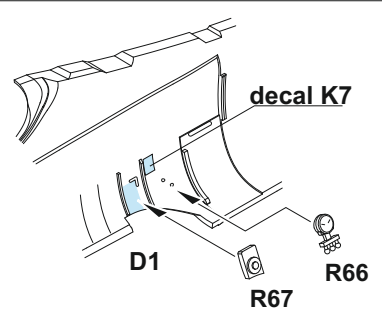
D

R20

E

D2

P22

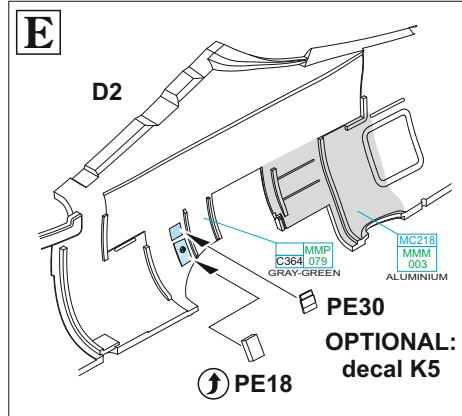


decal K7

D1

R67

R66



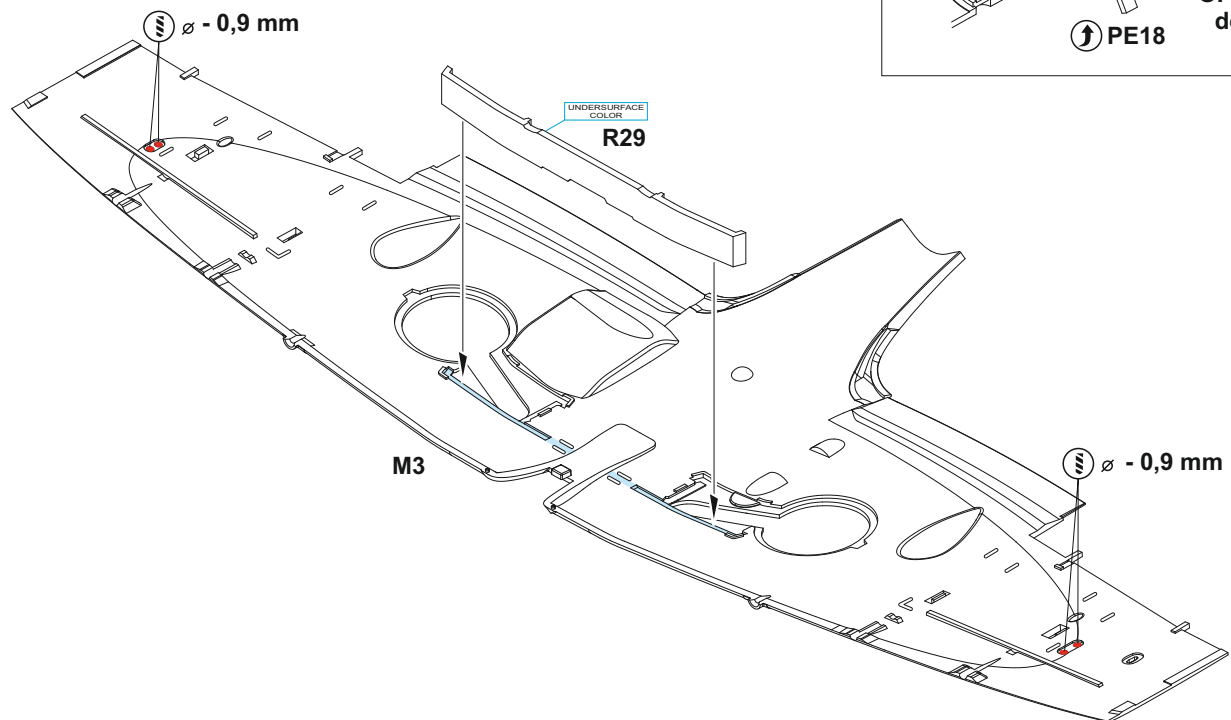
E

D2

PE30

OPTIONAL:
decal K5

PE18



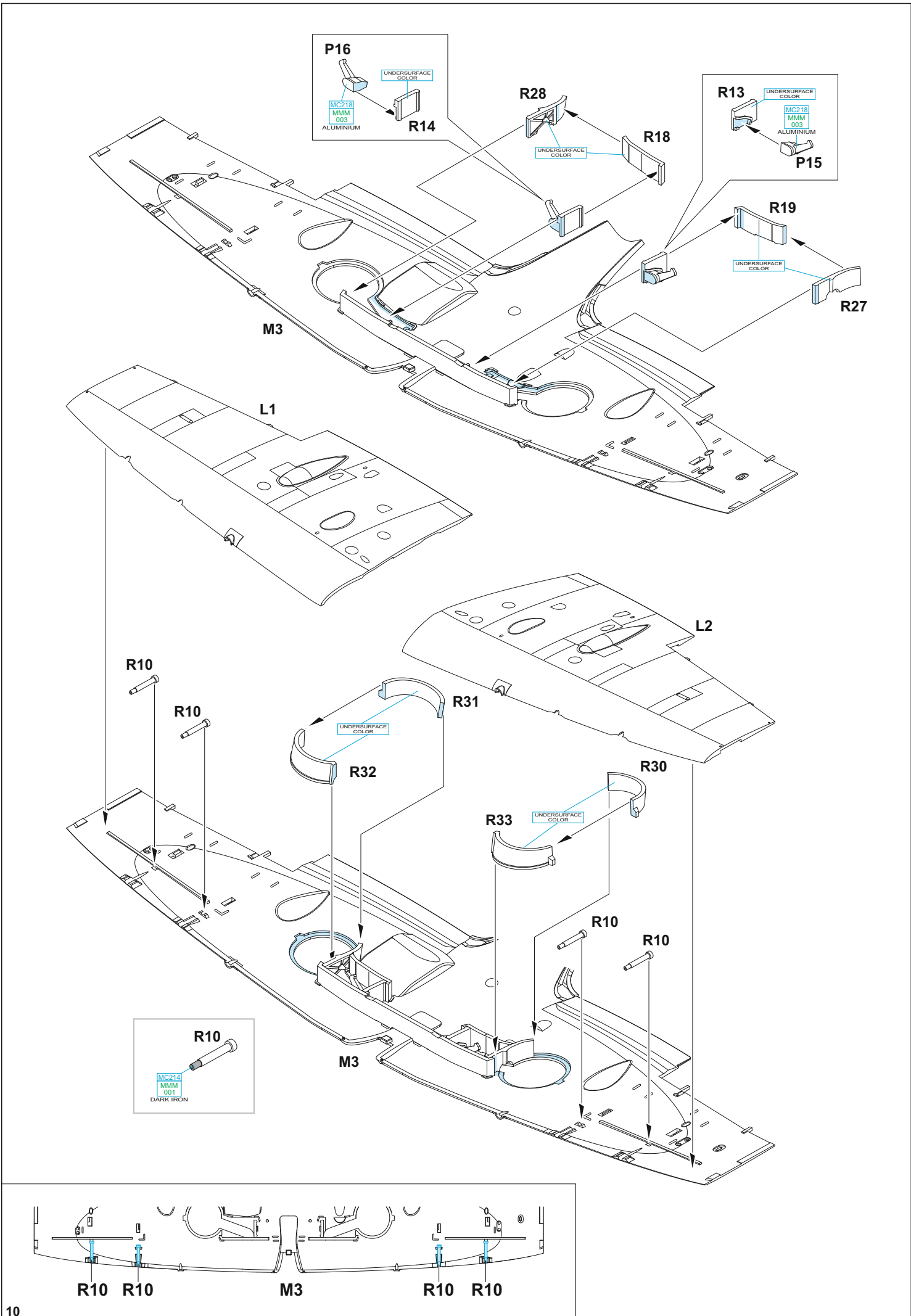
∅ - 0,9 mm

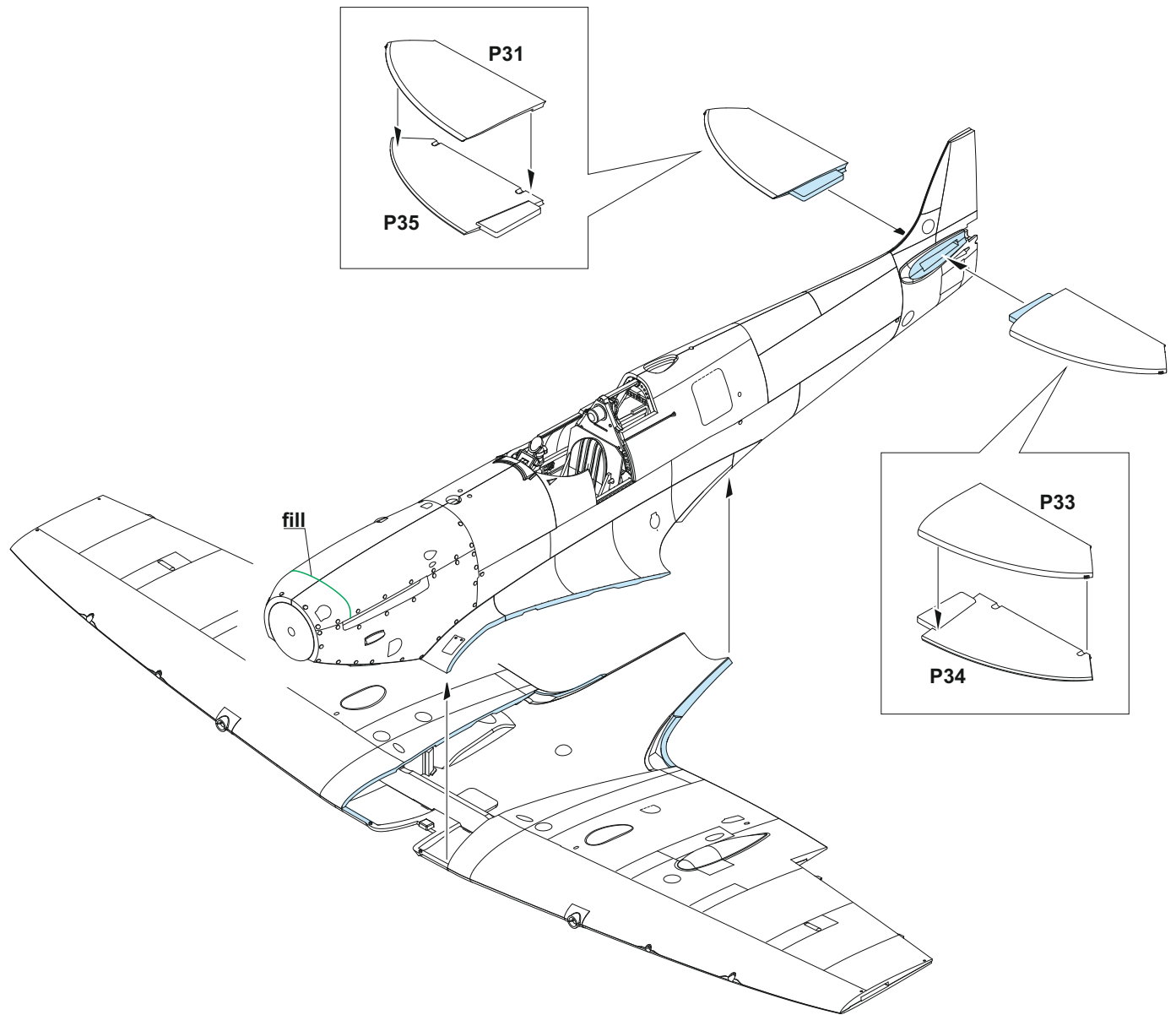
UNDERSURFACE
COLOR

R29

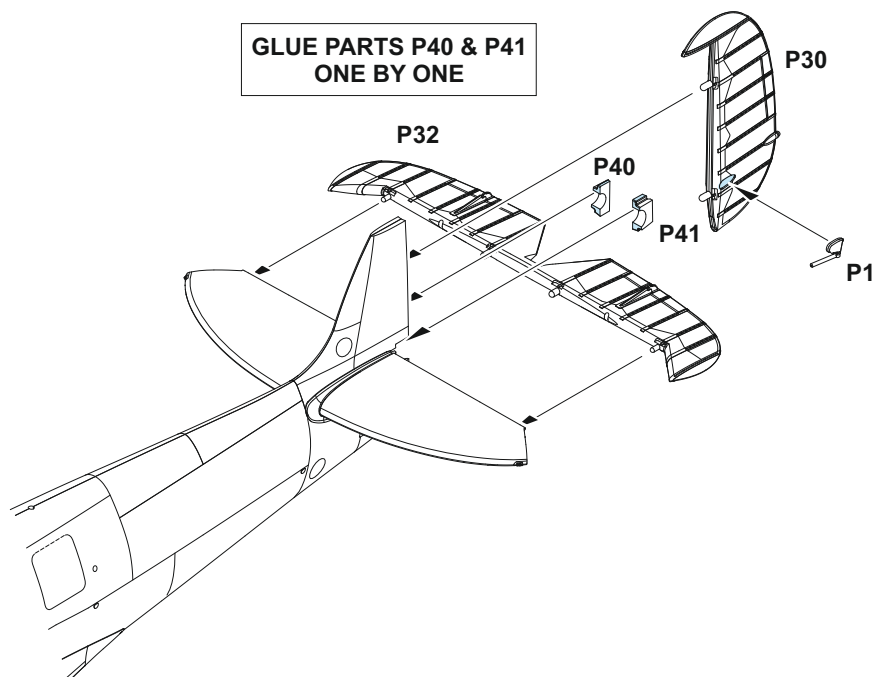
M3

∅ - 0,9 mm





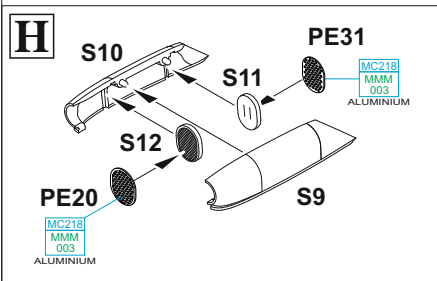
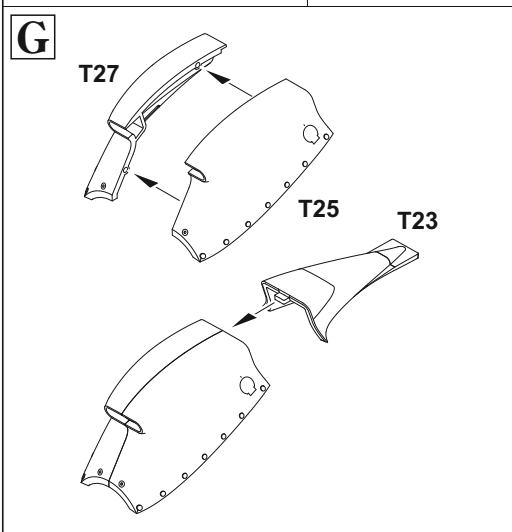
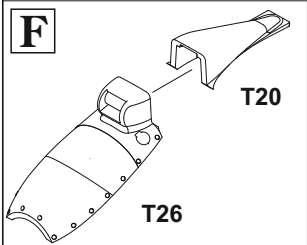
**GLUE PARTS P40 & P41
ONE BY ONE**



P25 ? RP - R

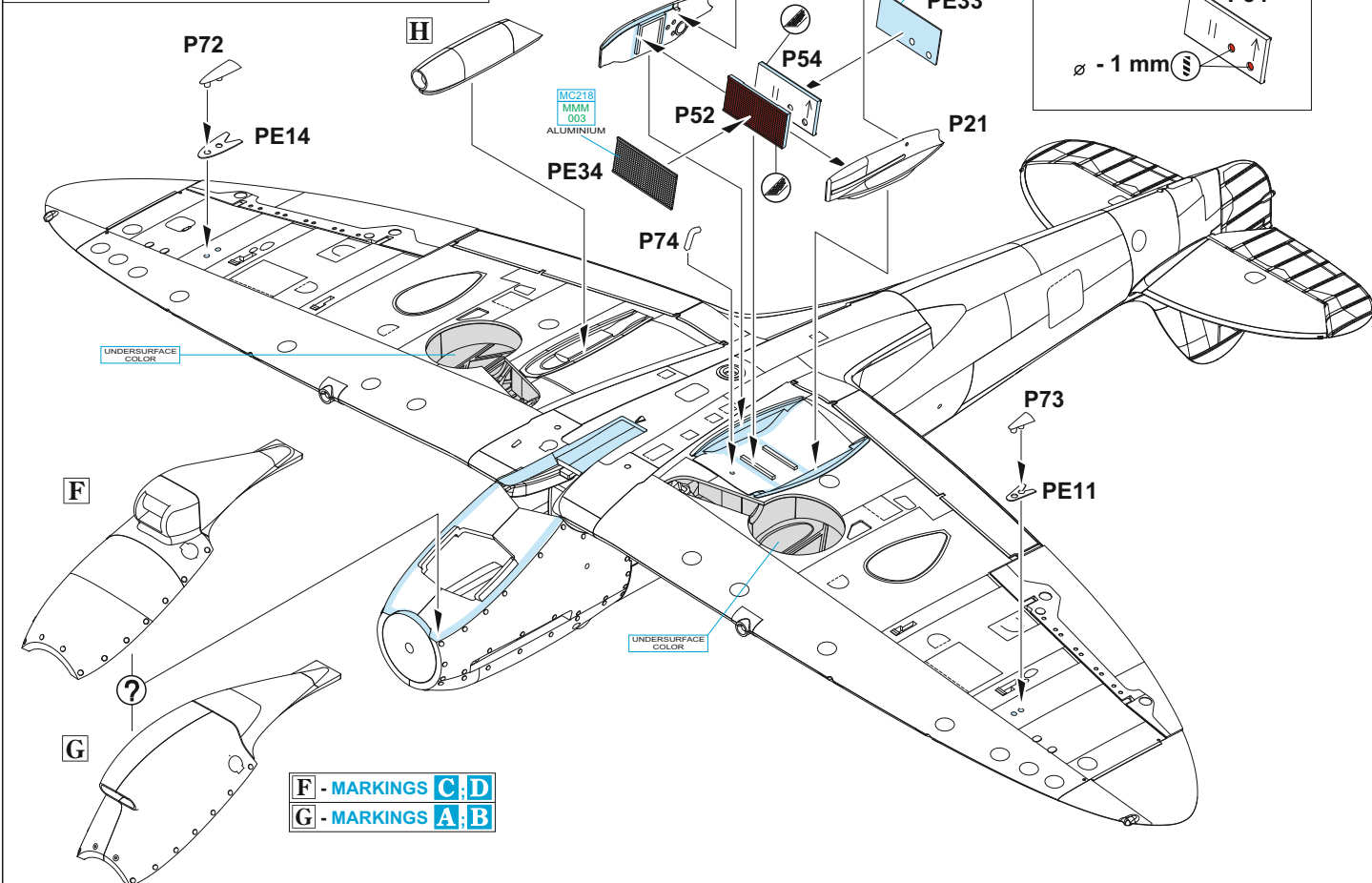
H94
C138
CLEAR GREEN

S21

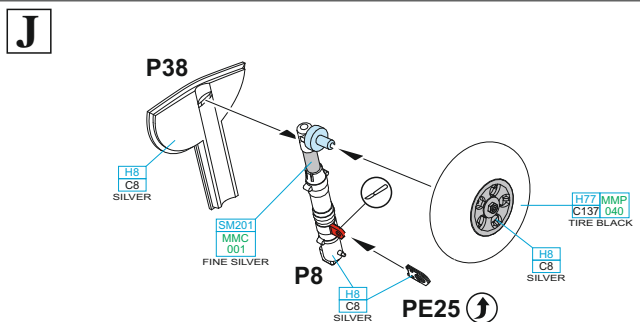
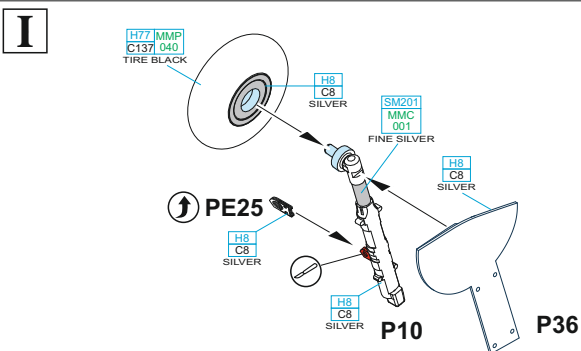
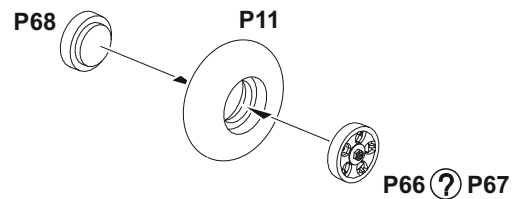
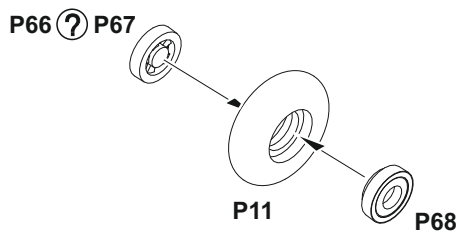
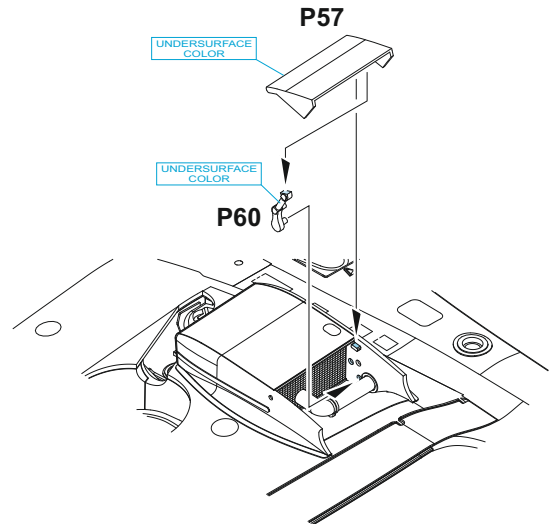
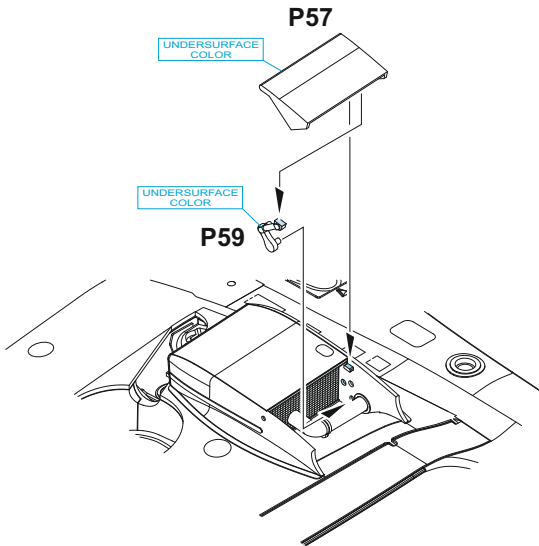
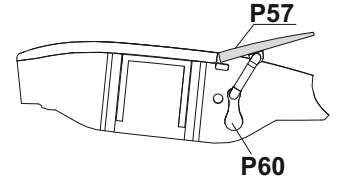
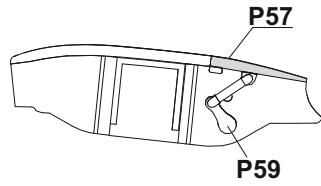
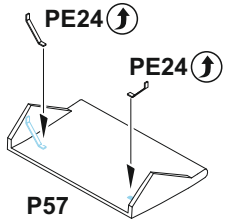
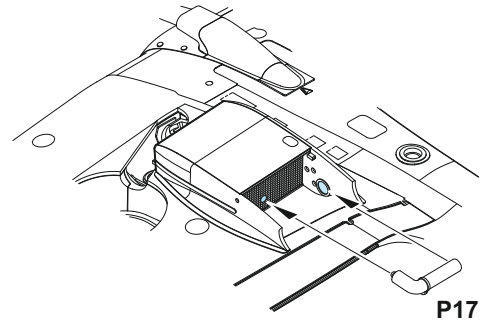
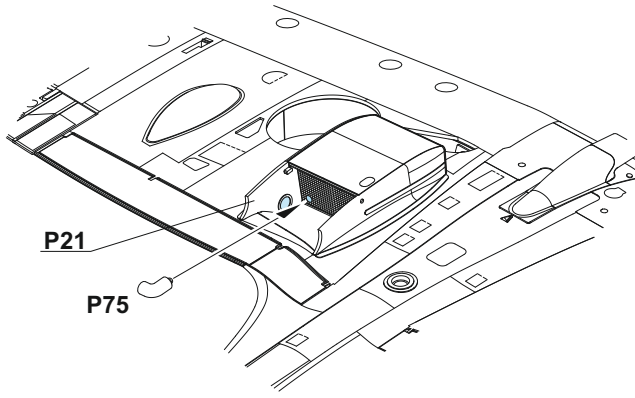


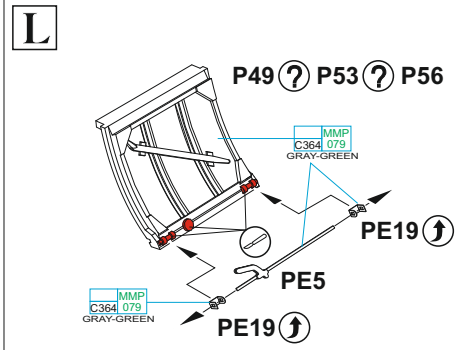
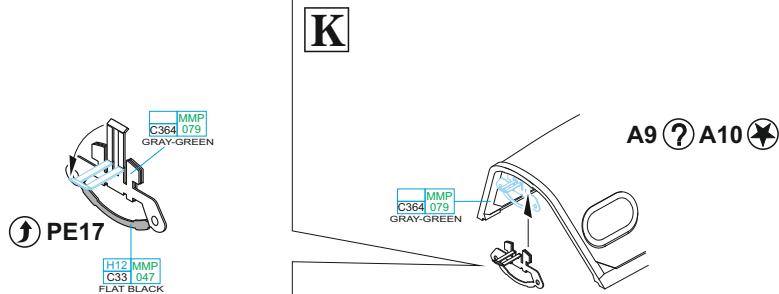
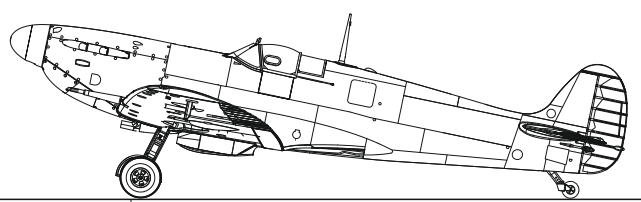
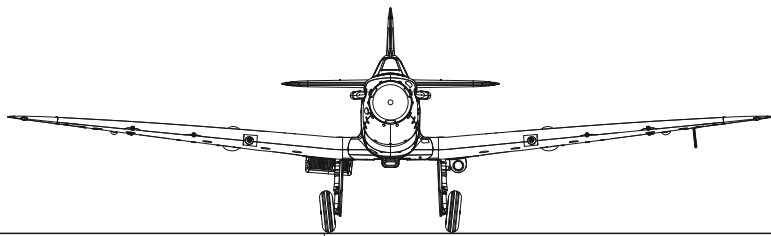
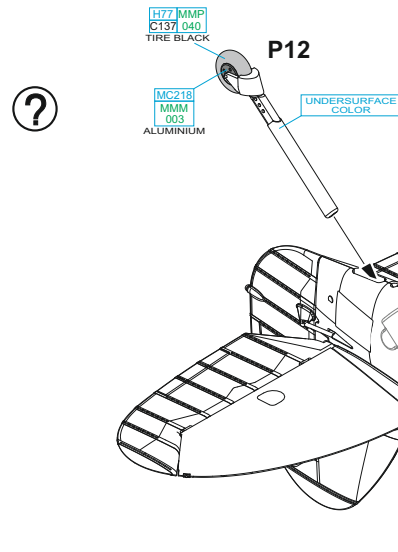
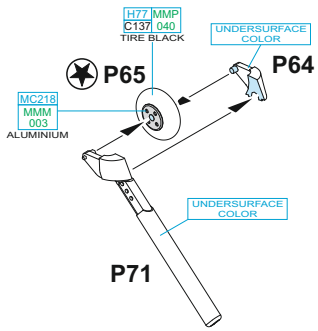
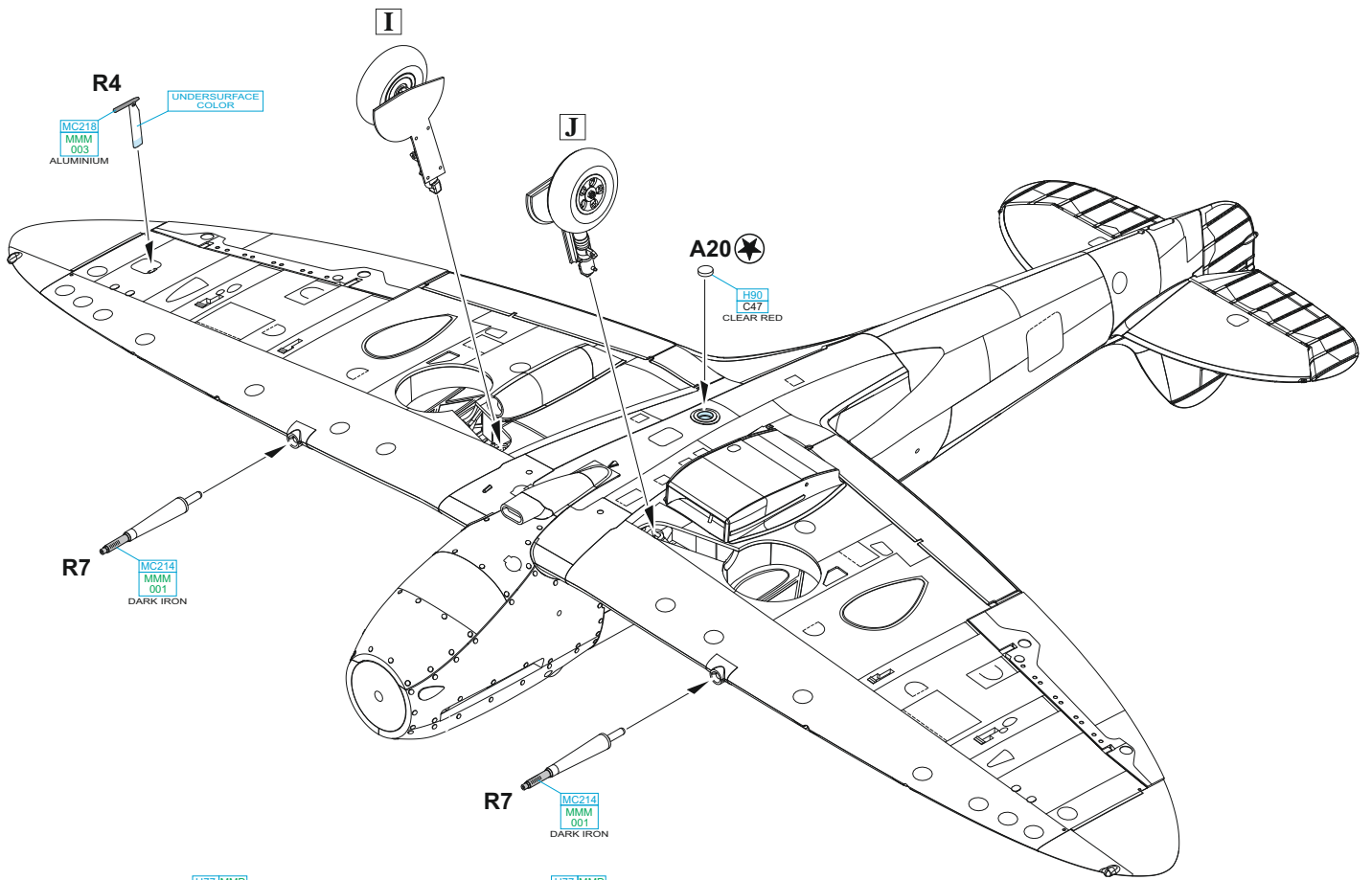
P28 ?
H90
C47
CLEAR RED
RP - L

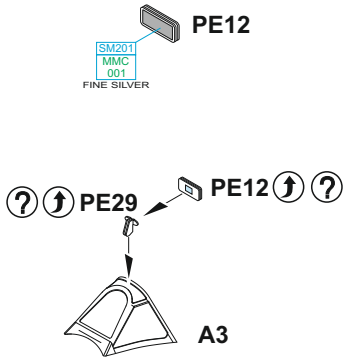
P25, P28 - MARKINGS A, B ONLY



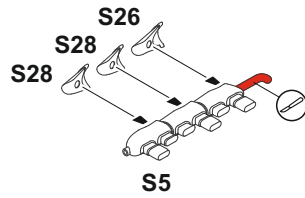
F - MARKINGS C, D
G - MARKINGS A, B



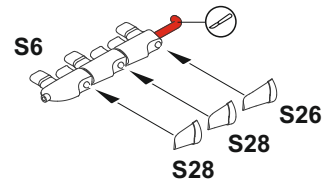


M**N**

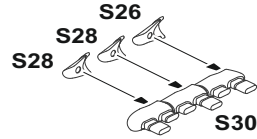
starboard side



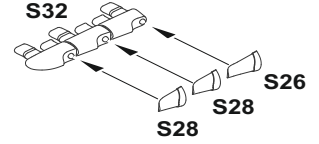
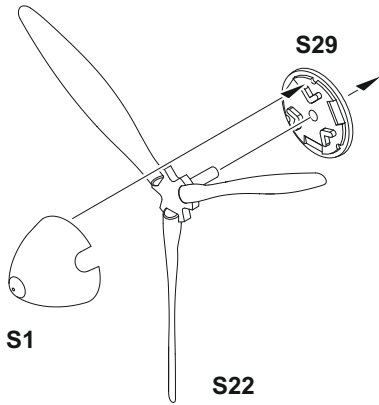
port side

**O**

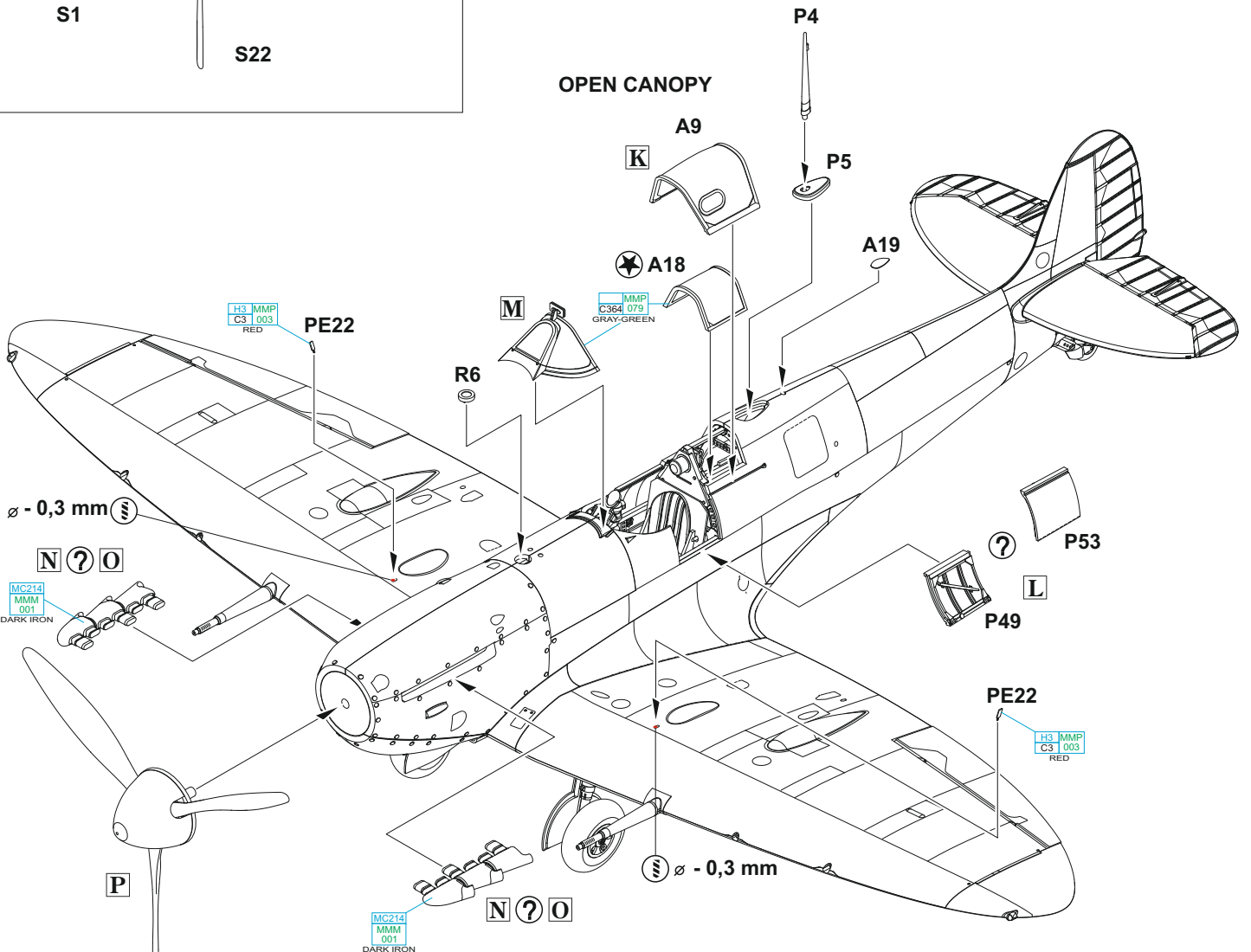
starboard side



port side

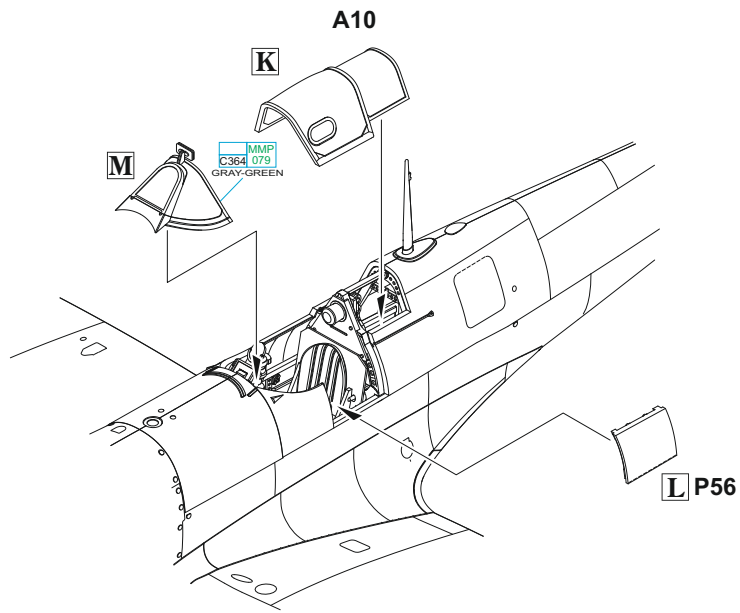
**P**

OPEN CANOPY



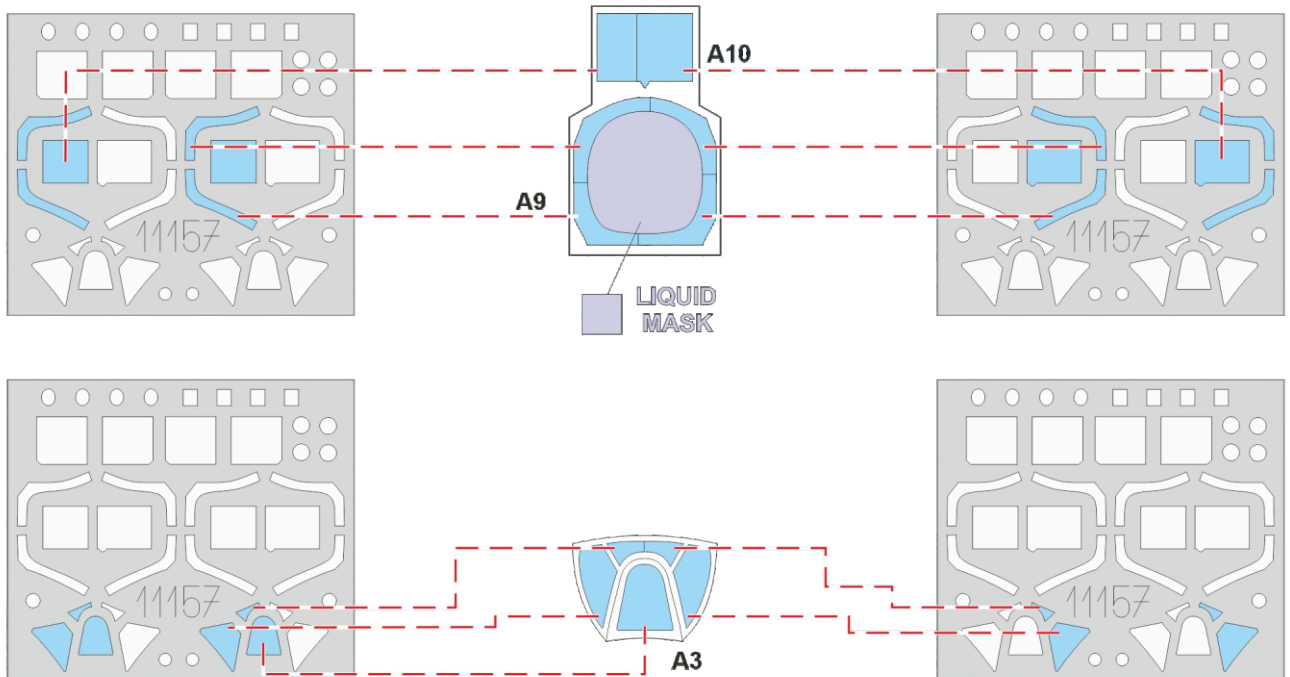
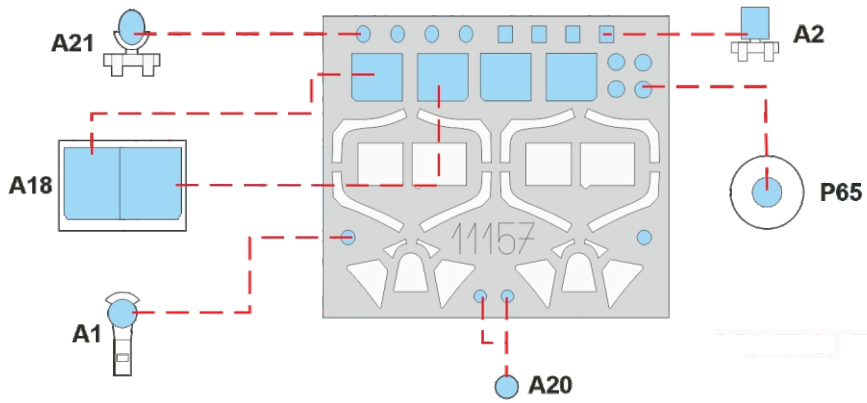
| | | |
|---|------------|------|
| N | - MARKINGS | B; D |
| O | - MARKINGS | A; C |

CLOSED CANOPY



eduard
MASK

11157





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
ODŘÍZNOUTREVERSE SIDE
OTOČITAPPLY EDUARD MASK
AND PAINT
POUŽIT EDUARD MASK
NABARVIT

PARTS



DÍLY



TEILE

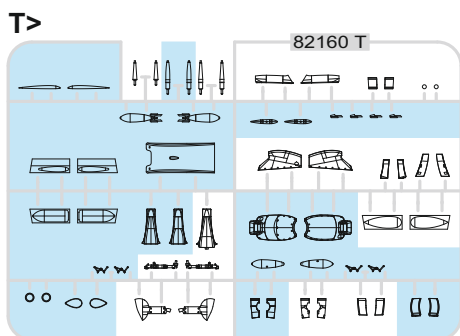
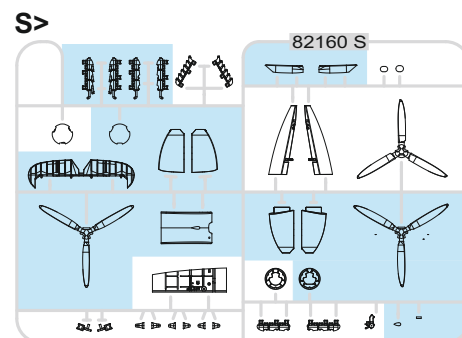
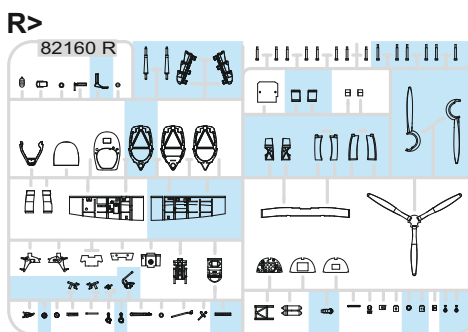
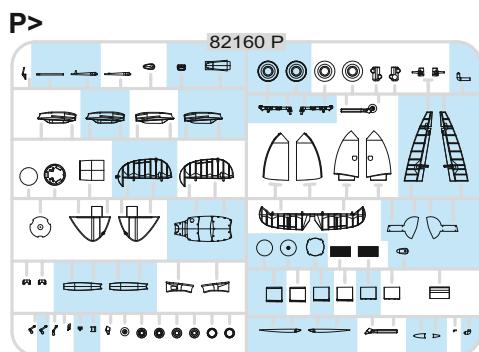
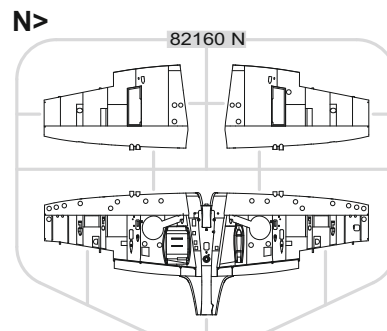
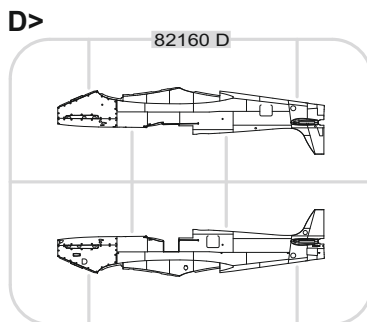
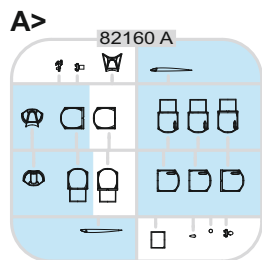
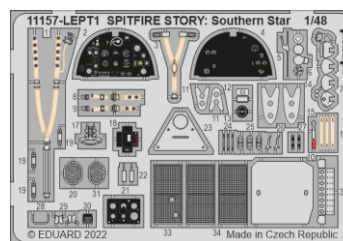


PIÈCES



部品

PLASTIC PARTS

PE - PHOTO ETCHED
DETAIL PARTS

-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



PEINTURE

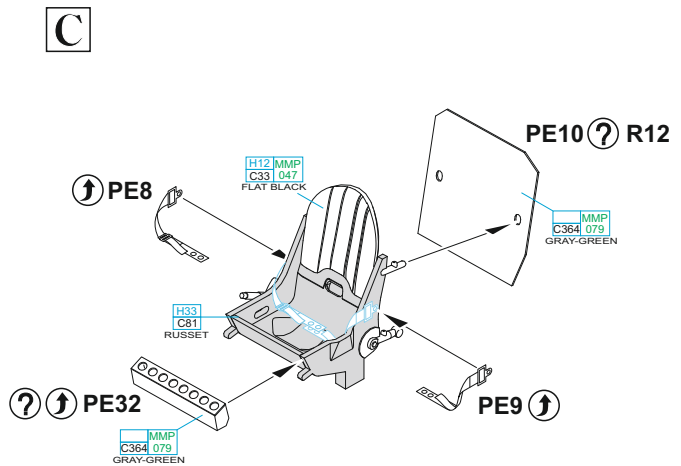
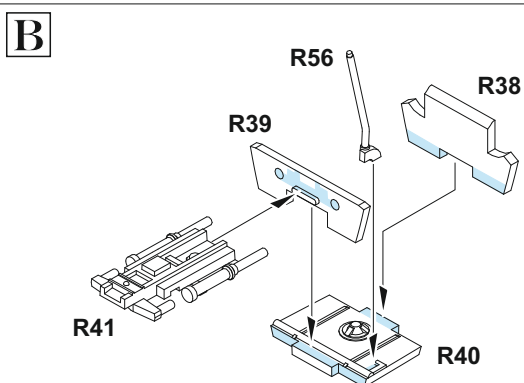
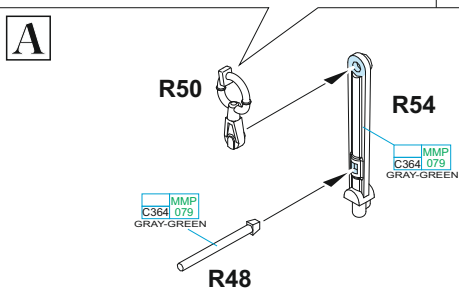
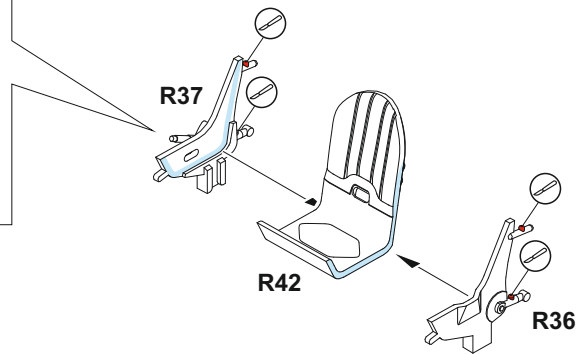
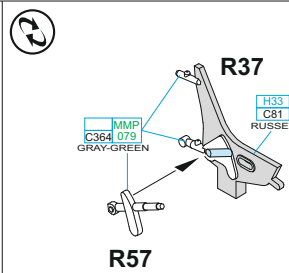
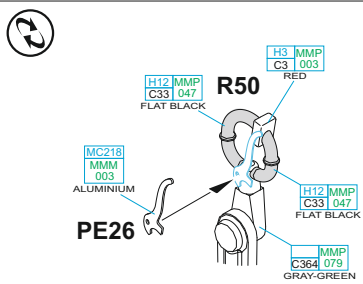
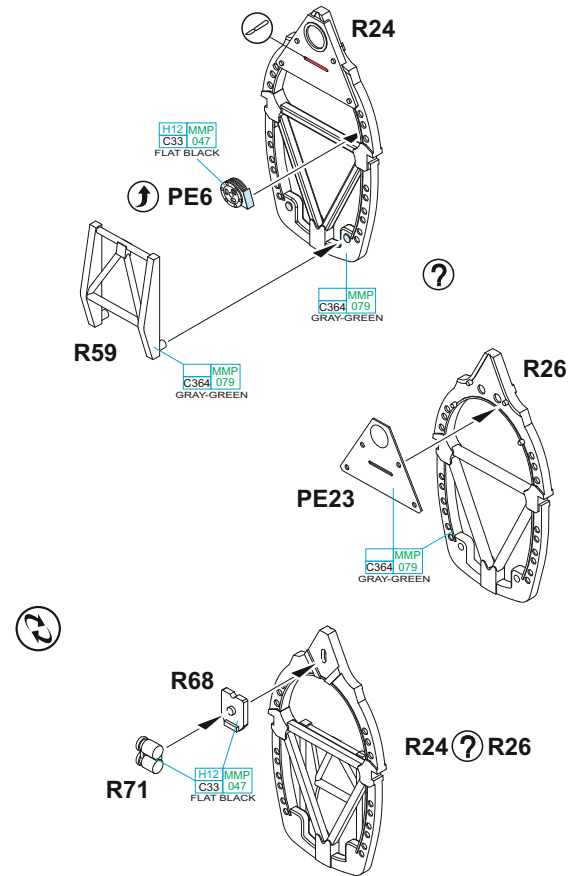
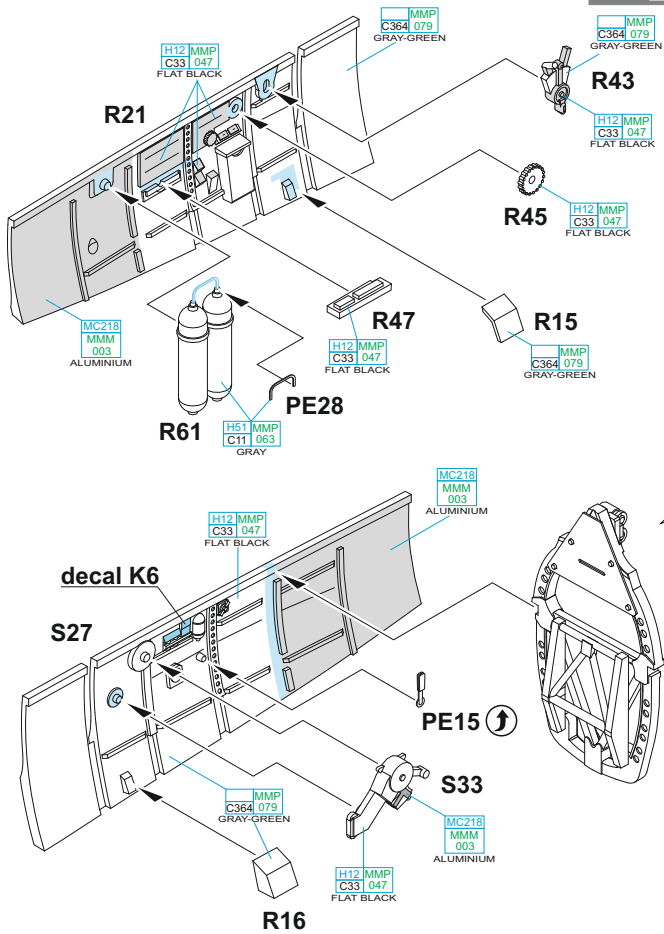


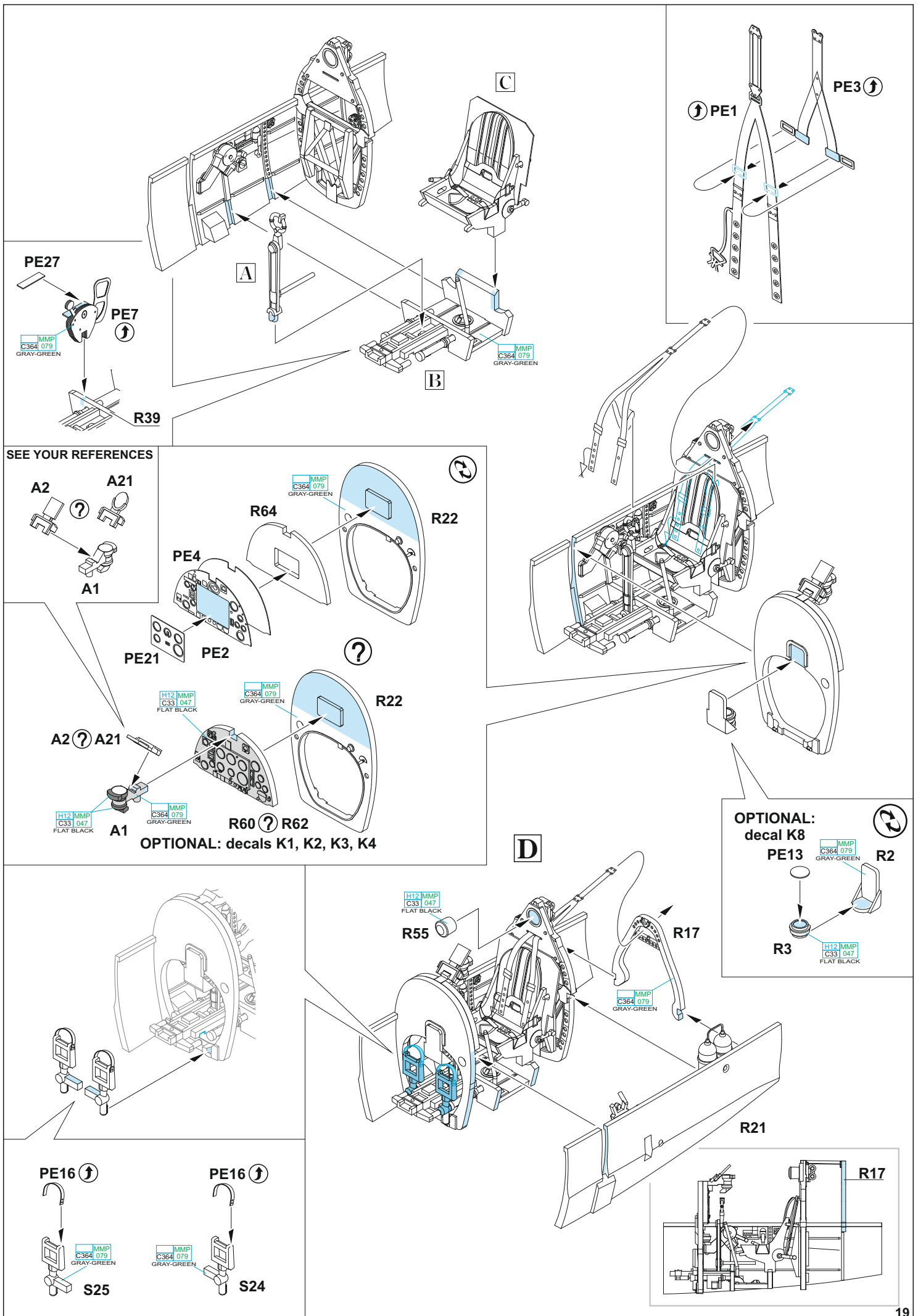
色

| GSI Creos (GUNZE) | | MISSION MODELS | |
|-------------------|----------|----------------|-----------------|
| AQUEOUS | Mr.COLOR | PAINTS | |
| H3 | C3 | MMP-003 | RED |
| H4 | C4 | MMP-007 | YELLOW |
| H5 | C5 | MMP-048 | BLUE |
| H6 | C6 | MMP-004 | GREEN |
| H8 | C8 | | SILVER |
| H11 | C62 | MMP-001 | FLAT WHITE |
| H12 | C33 | MMP-047 | FLAT BLACK |
| H33 | C81 | | RUSSET |
| H51 | C11 | MMP-063 | LIGHT GULL GRAY |
| H71 | C21 | MMP-076 | MIDDLE STONE |
| H72 | C369 | MMP-078 | DARK EARTH |
| H74 | C368 | MMP-080 | SKY |
| H77 | C137 | MMP-040 | TIRE BLACK |

| GSI Creos (GUNZE) | | MISSION MODELS | |
|-------------------------|----------|----------------|---------------------|
| AQUEOUS | Mr.COLOR | PAINTS | |
| H90 | C47 | | CLEAR RED |
| H94 | C138 | | CLEAR GREEN |
| H302 | C302 | | GREEN |
| H326 | C326 | | BLUE |
| H330 | C361 | MMP-077 | DARK GREEN |
| | C364 | MMP-079 | AIRCRAFT GRAY-GREEN |
| | C370 | MMP-092 | AZURE BLUE |
| Mr.METAL COLOR | | METALLICS | |
| | MC214 | MMM-001 | DARK IRON |
| | MC218 | MMM-003 | ALUMINIUM |
| Mr.COLOR SUPER METALLIC | | METALLICS | |
| | SM201 | MMC-001 | SUPER FINE SILVER |

Spitfire Mk.Vc Trop





PE27

PE7

MMP C364 079 GRAY-GREEN

R39

A

C

B

PE1

PE3

SEE YOUR REFERENCES

A2

A21

A1

R64

R22

PE4

PE21

PE2

?

A2 ? A21

H12 MMP C33 047 FLAT BLACK

MMP C364 079 GRAY-GREEN

R22

A1

MMP C364 079 GRAY-GREEN

R60 ? R62

OPTIONAL: decals K1, K2, K3, K4

D

OPTIONAL: decal K8

PE13

R2

MMP C364 079 GRAY-GREEN

R3

H12 MMP C33 047 FLAT BLACK

H12 MMP C33 047 FLAT BLACK

R55

R17

MMP C364 079 GRAY-GREEN

R21

PE16

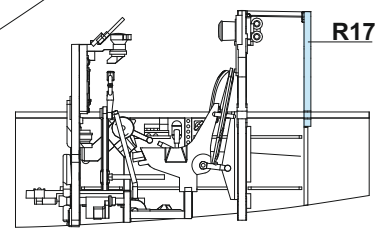
PE16

S25

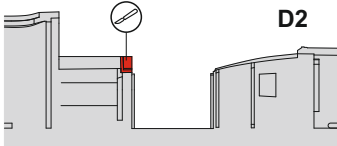
S24

MMP C364 079 GRAY-GREEN

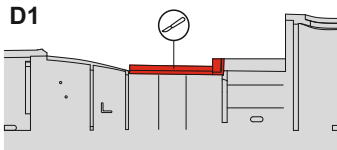
MMP C364 079 GRAY-GREEN



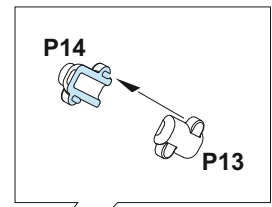
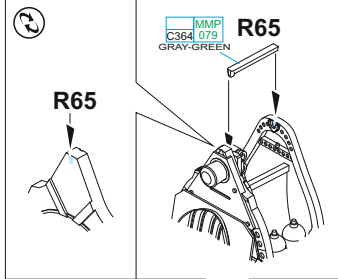
7 FOR CLOSED CANOPY ONLY



D2

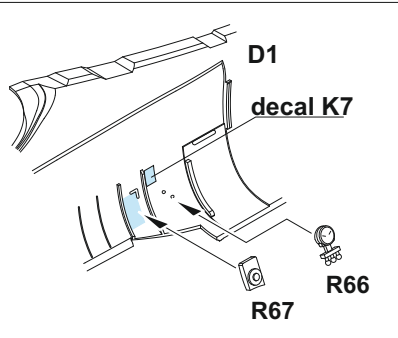
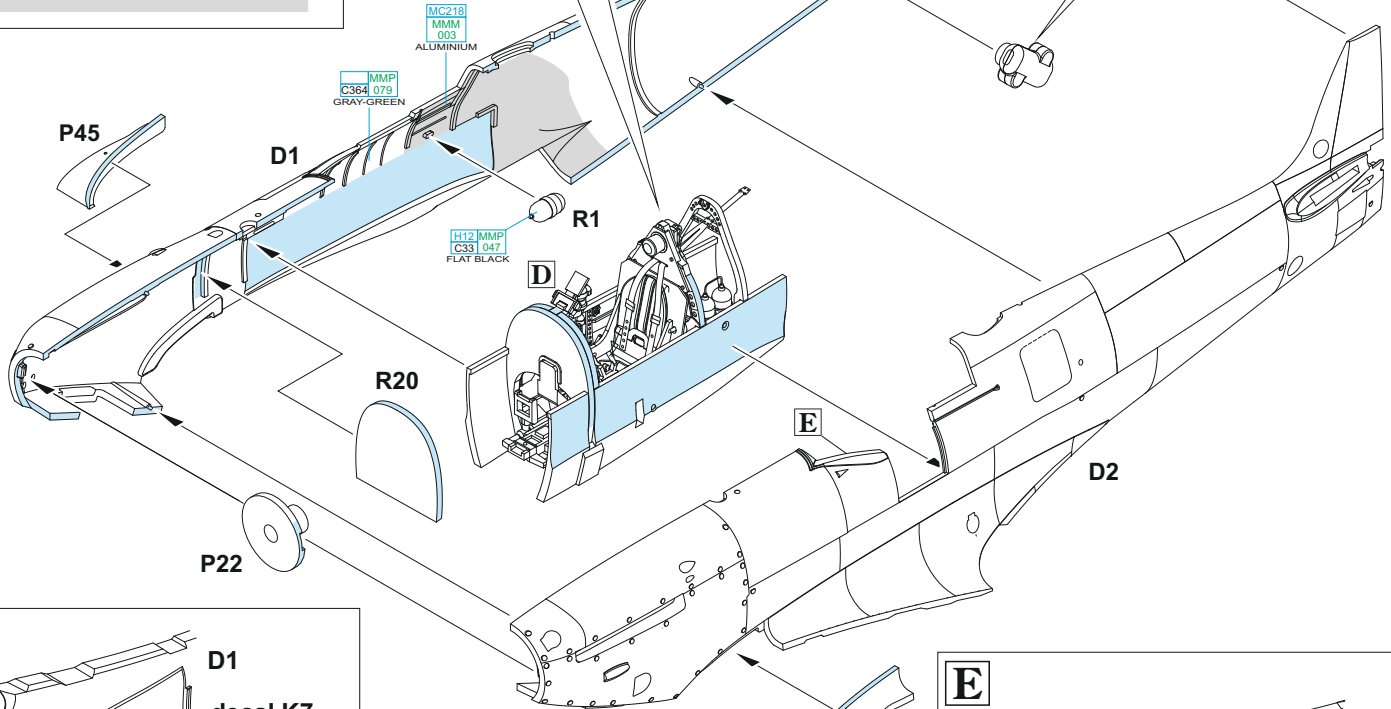


D1



P14

P13

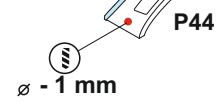


D1

decal K7

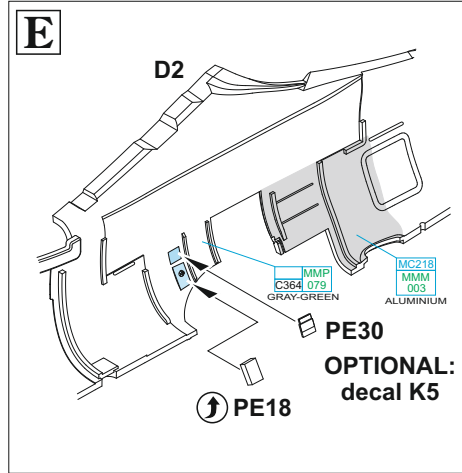
R67

R66



P44

∅ - 1 mm

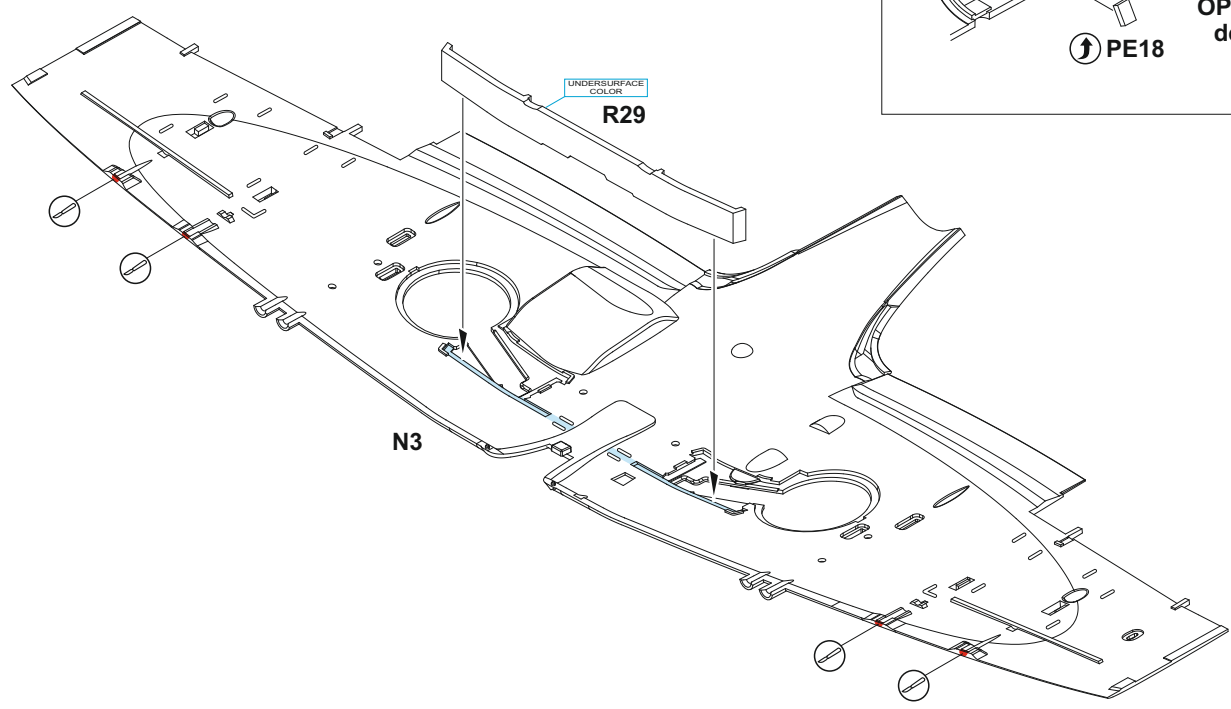


E

D2

OPTIONAL:
decal K5

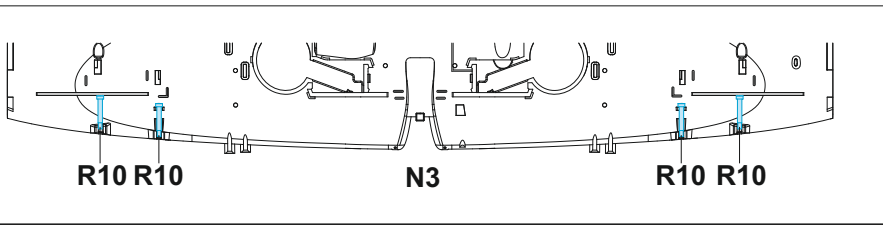
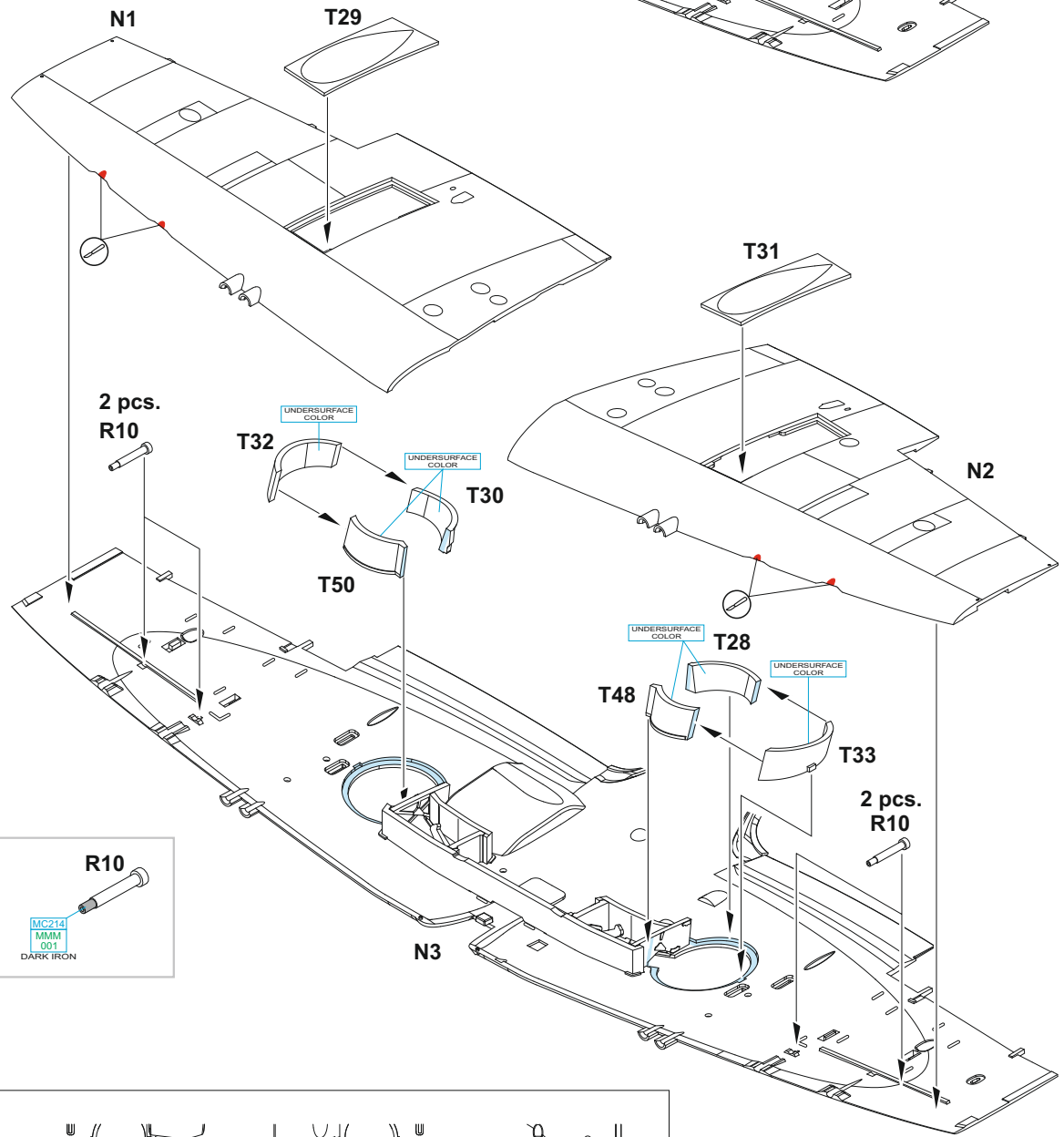
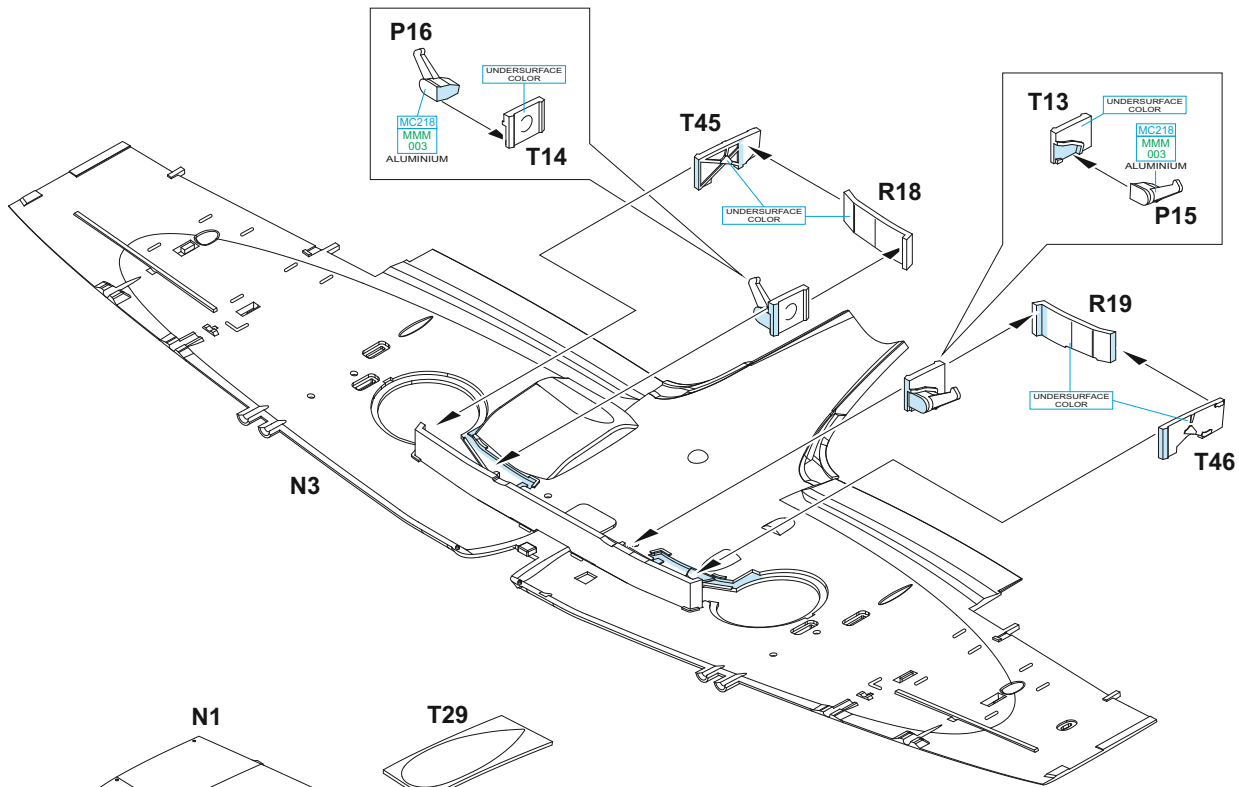
PE18

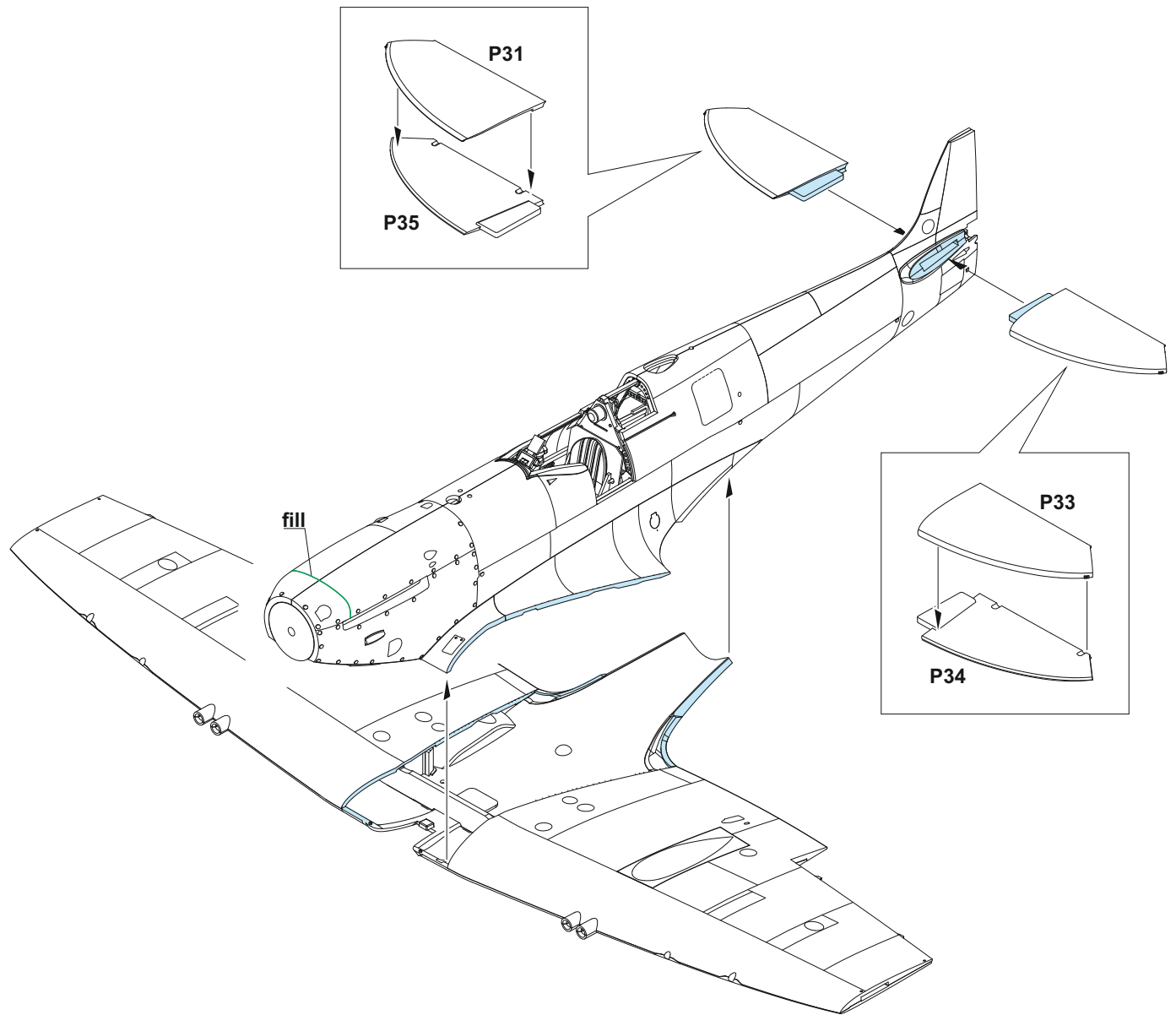


UNDERSURFACE
COLOR

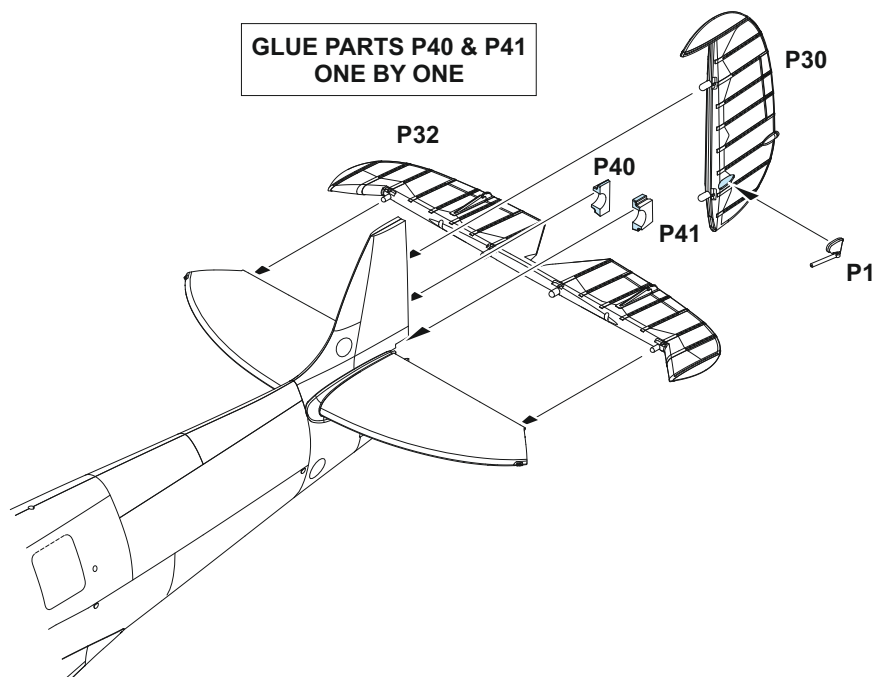
R29

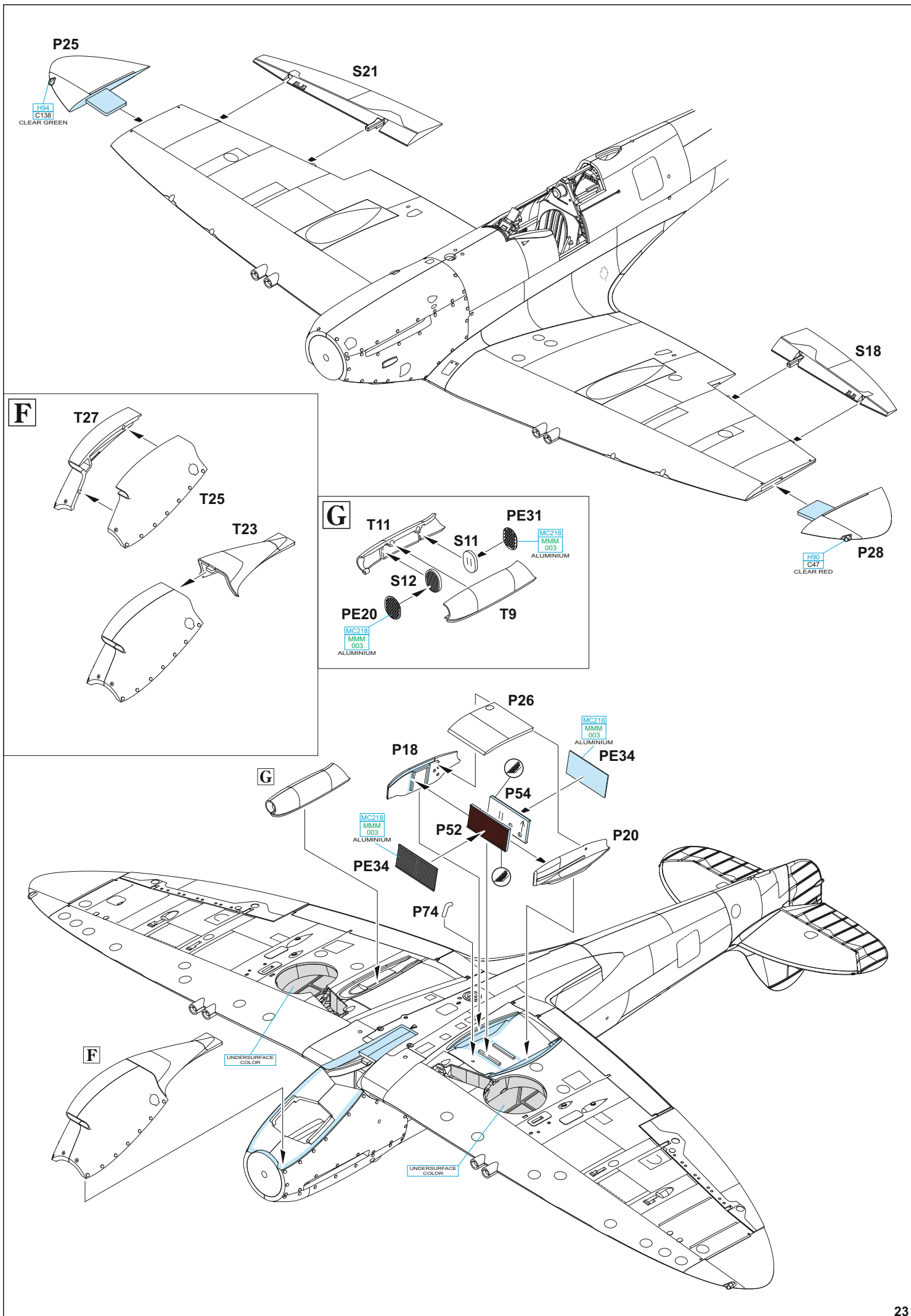
N3

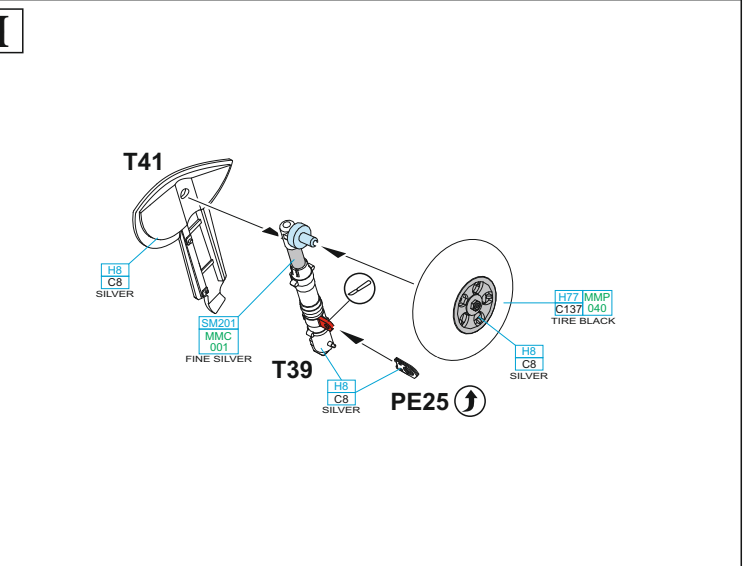
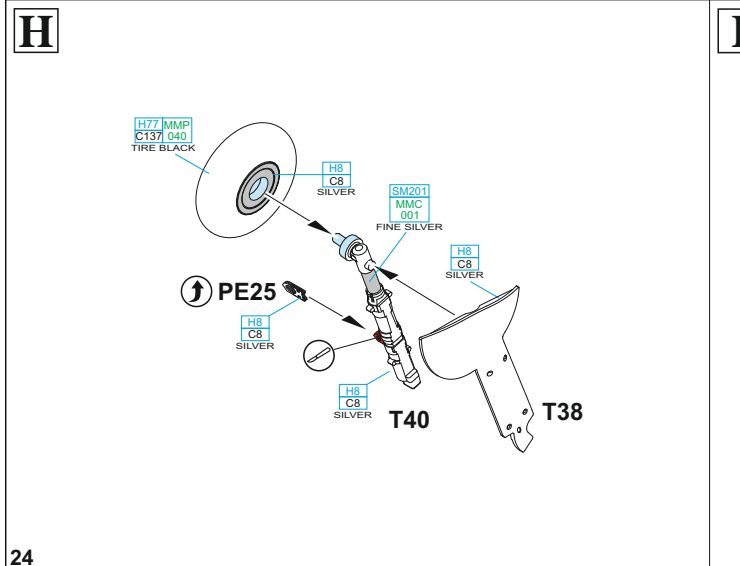
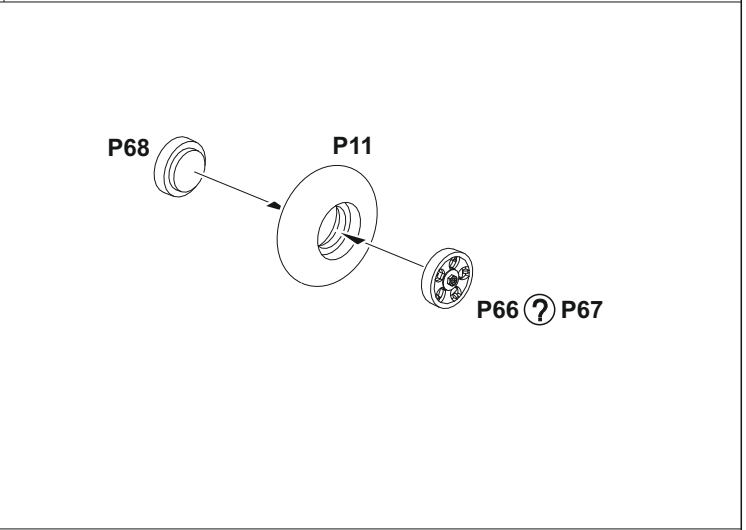
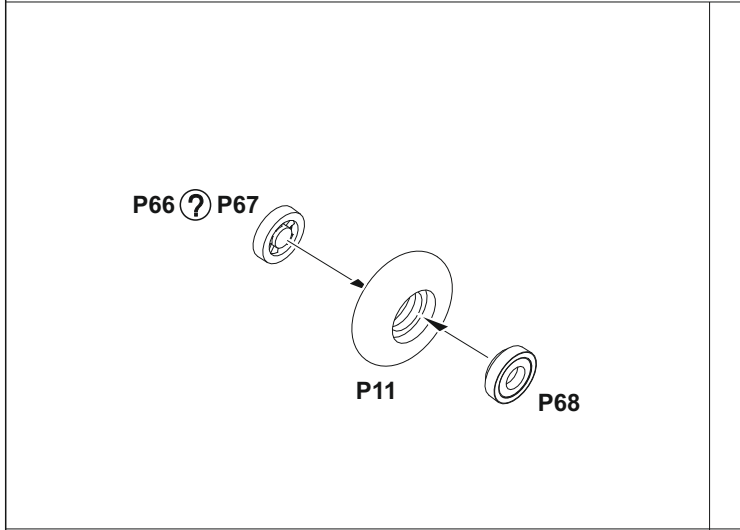
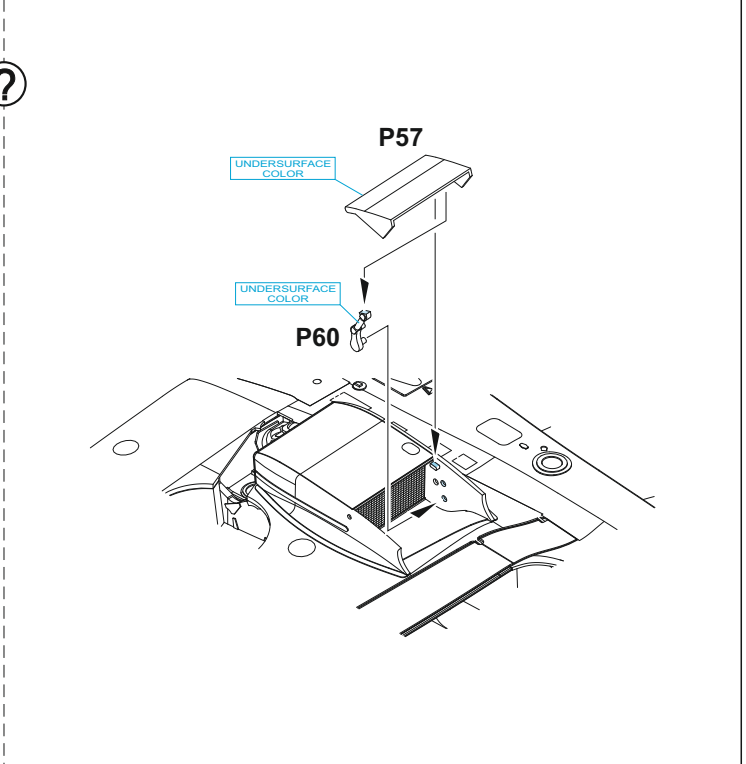
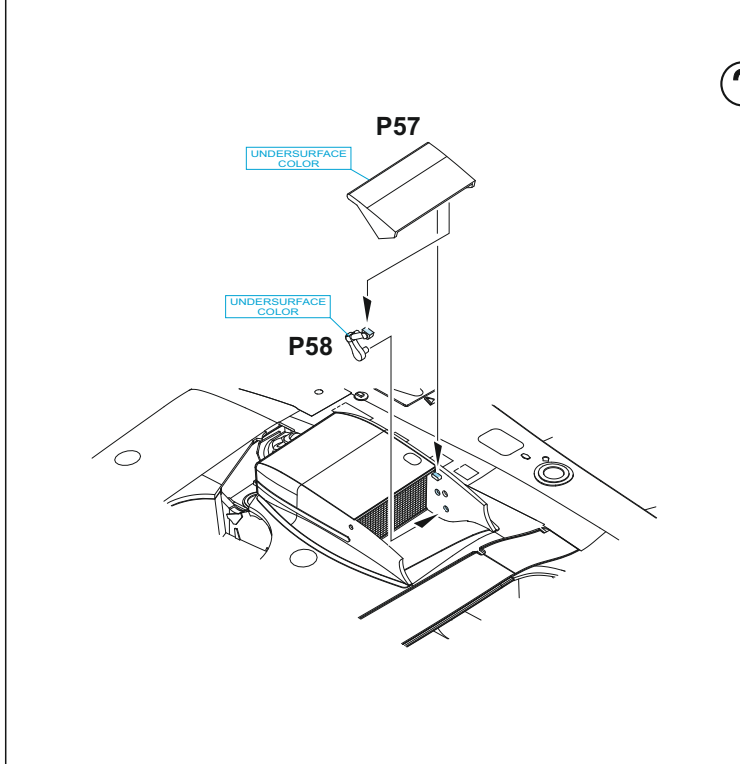
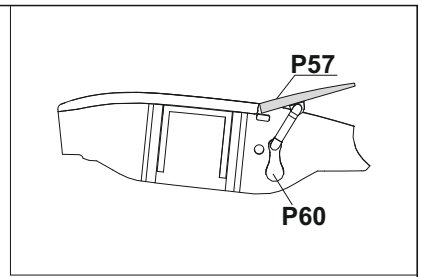
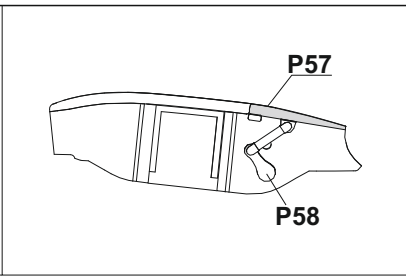
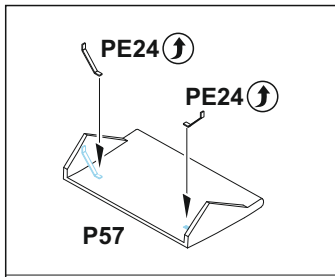


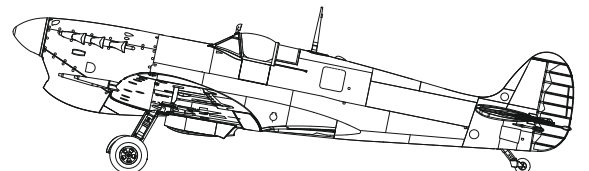
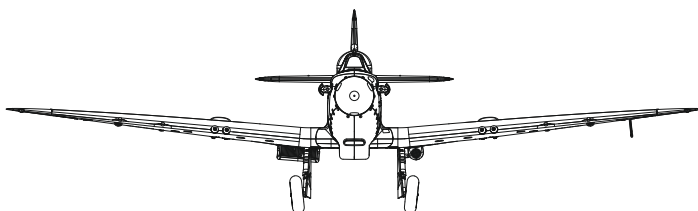
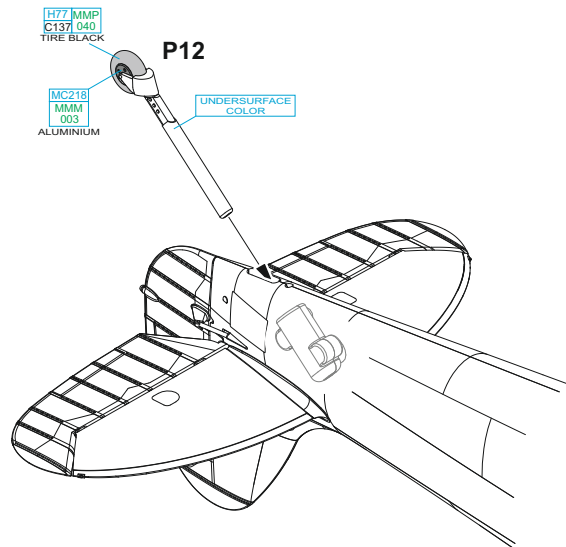
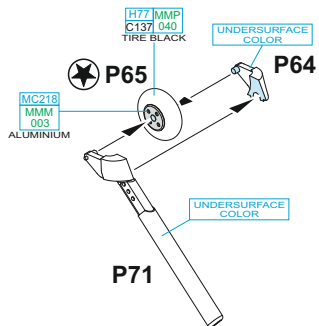
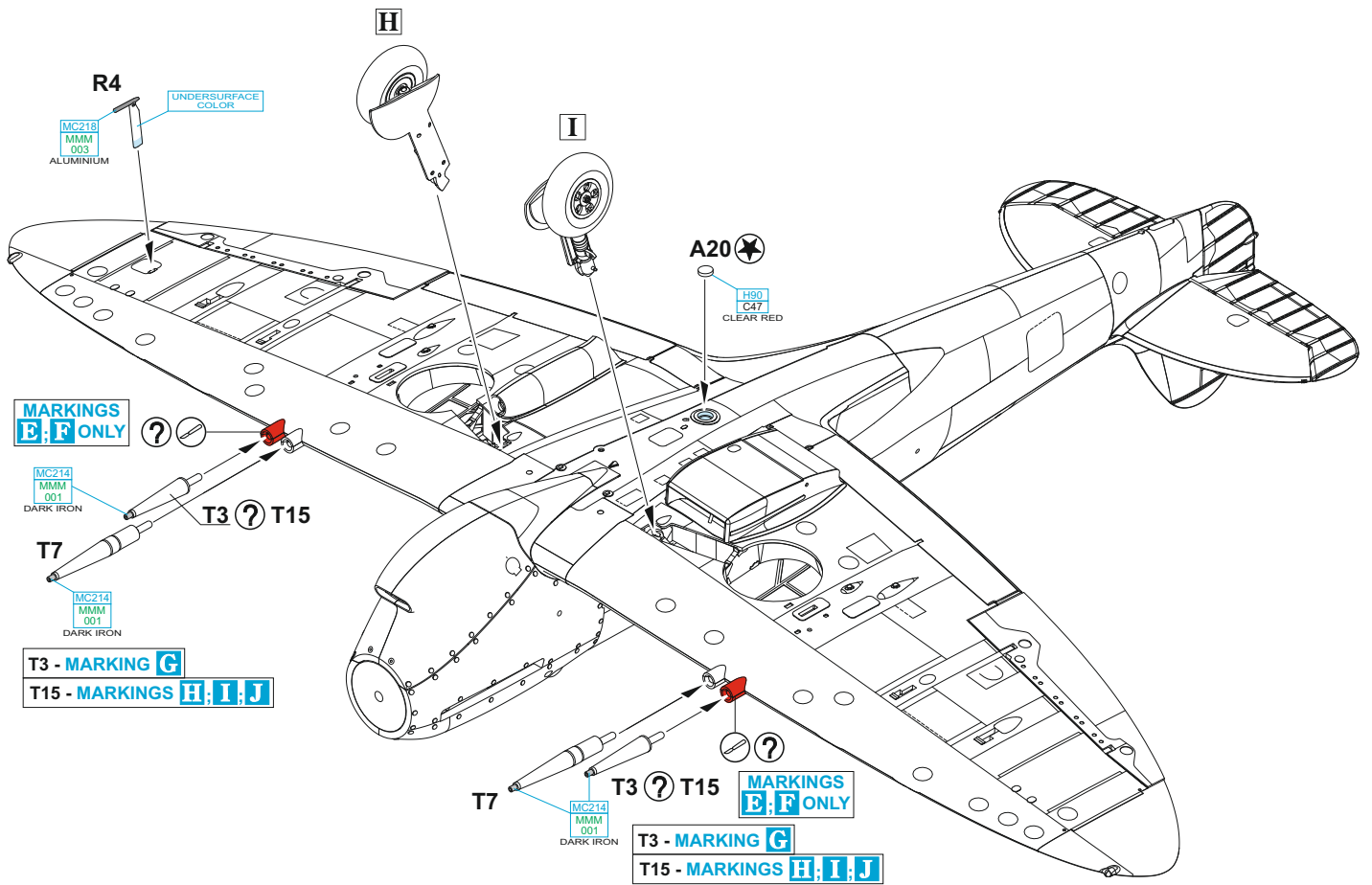


**GLUE PARTS P40 & P41
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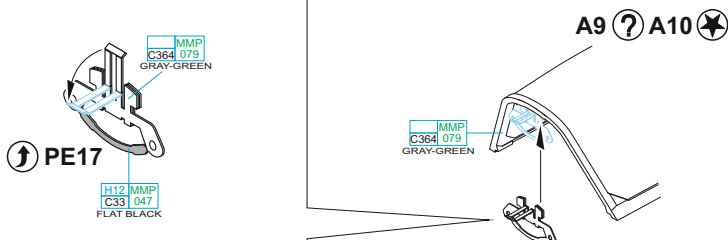




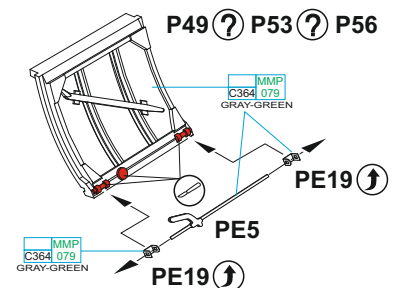


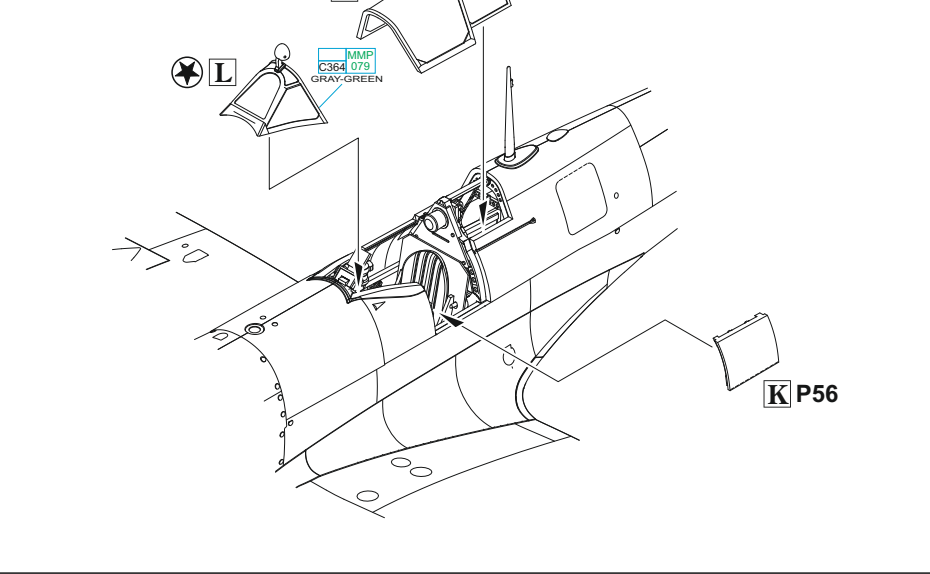
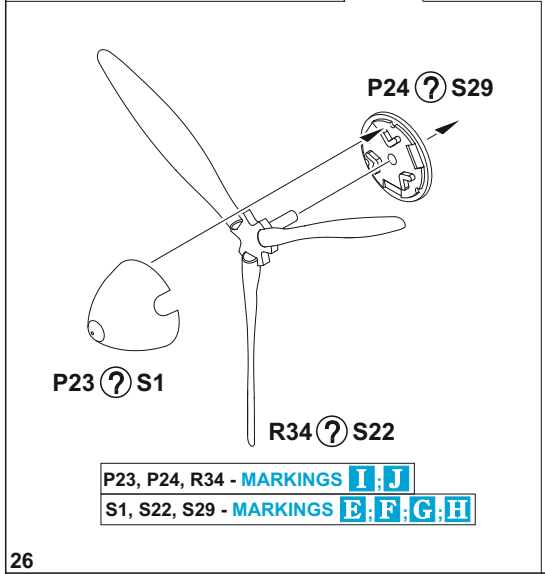
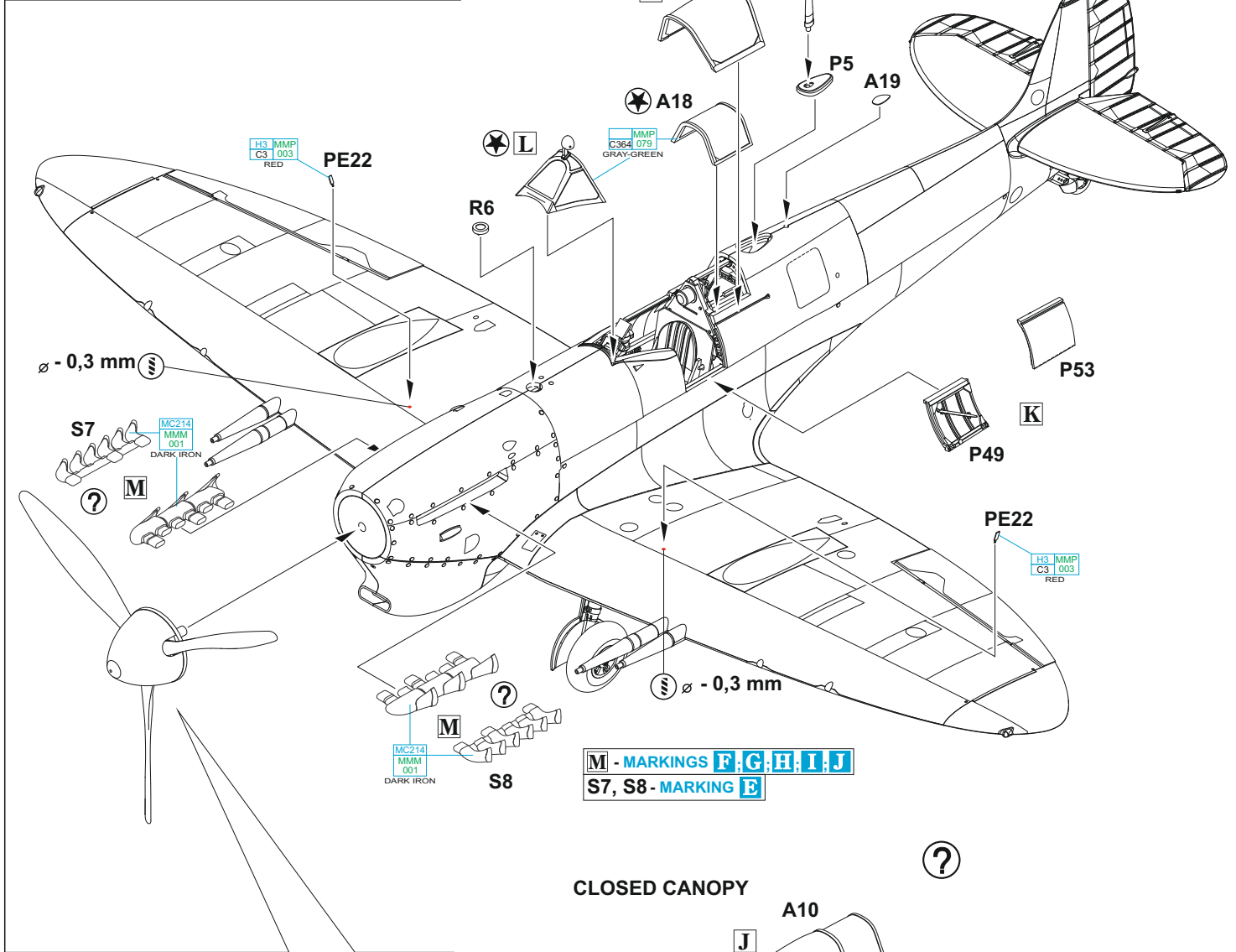
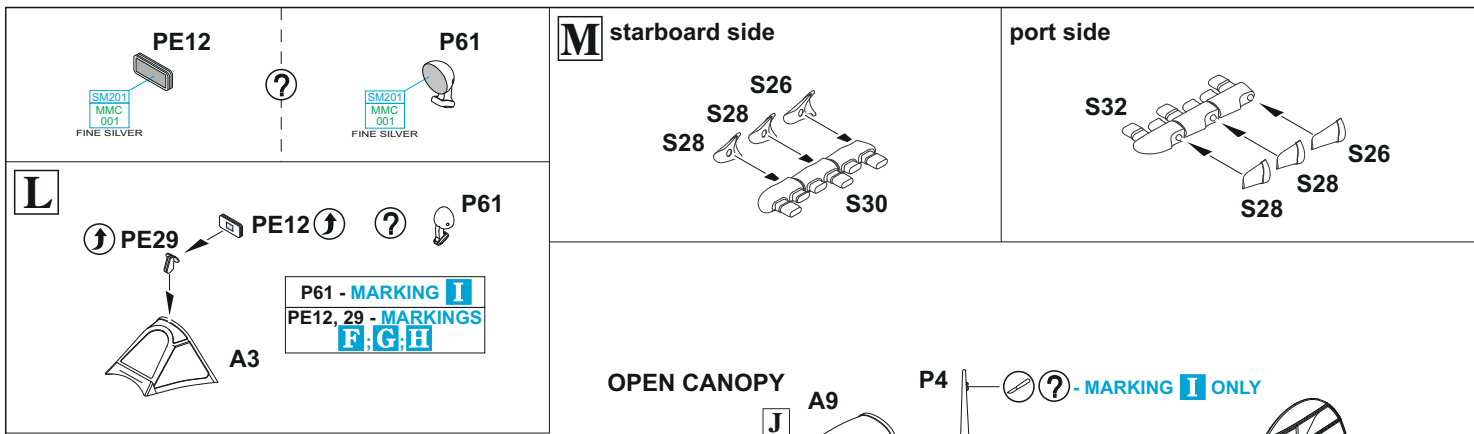


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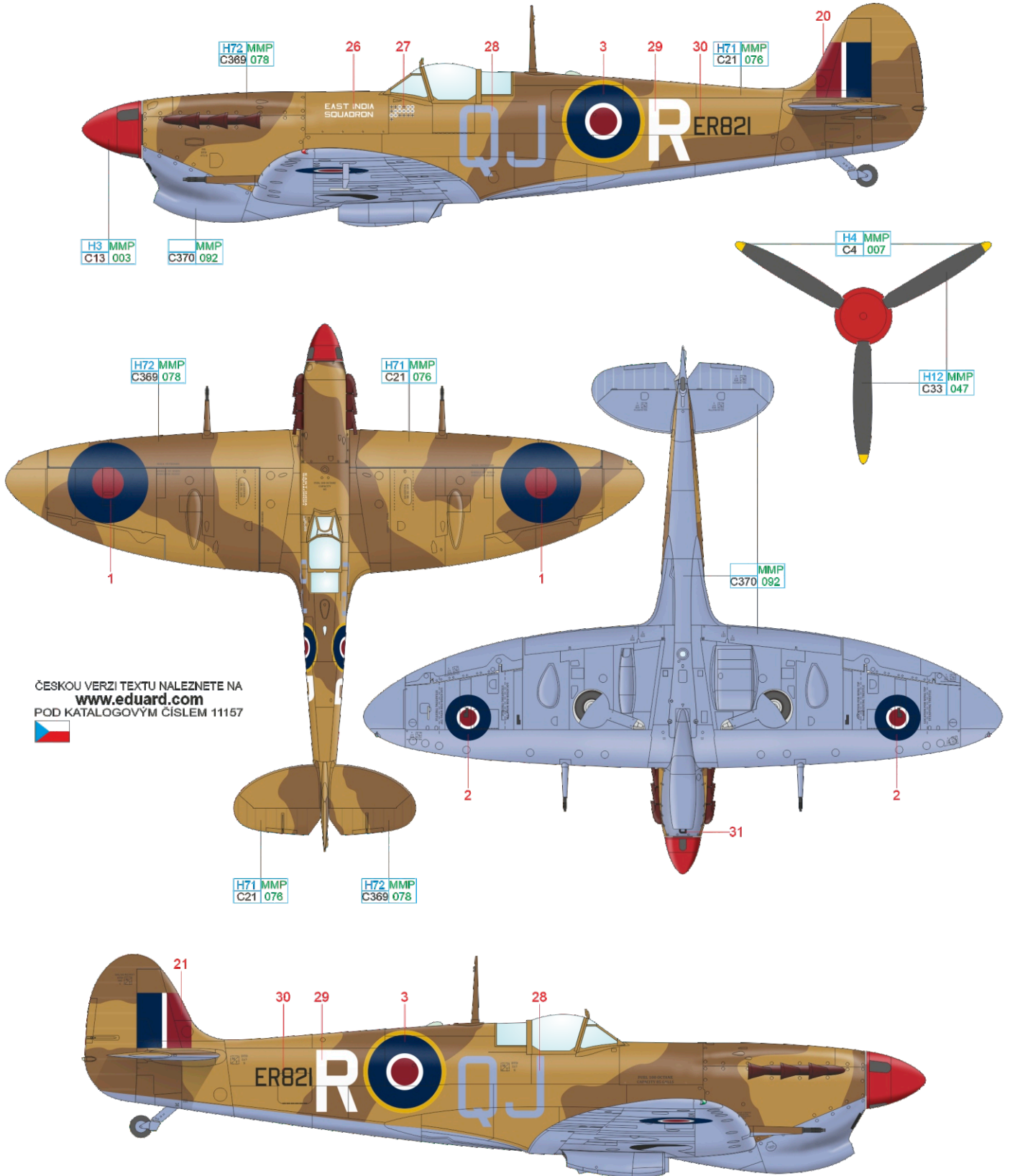
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A Spitfire Mk.Vb trop, ER821, F/Lt Neville F. Duke, No. 92 Squadron, Bou Grara, Tunisia, January–March 1943

Neville Frederick Duke, a native of Turnbridge, Kent, joined the RAF in June 1940. He was eighteen at the time. After training he was posted to No. 92 Squadron in February 1941 and achieved his first two kills with this unit. He often flew as wingman to "Sailor" Malan, commander of the Biggin Hill Wing. In October 1941, Duke was sent to North Africa to No. 122 Squadron, flying Tomahawks and Kittyhawks and he achieved a further six kills there. When he began his second operational tour, it was with No. 92 Squadron again. The unit also moved to the African continent together with its tropical Mk.Vb Spitfires. Within a few months Duke notched up 14 more victories and he took command of No. 145 Squadron in March 1944. The unit was equipped with Mk.VIII Spitfires and by September Duke had scored six more kills. He finished the war with 28 victories, becoming the most successful pilot in the Mediterranean area. On his return to Europe, he continued as chief test pilot with Hawker. In 1946, he joined the RAF's High Speed Flight. After demonstrating the Gloster Meteor at an air show in Prague in 1946, he was awarded the Czechoslovak War Cross for his war service. In 1953 he set the world speed record with Hawker Hunter, when he managed to achieve 727.63 mph (1171.01 km/h).



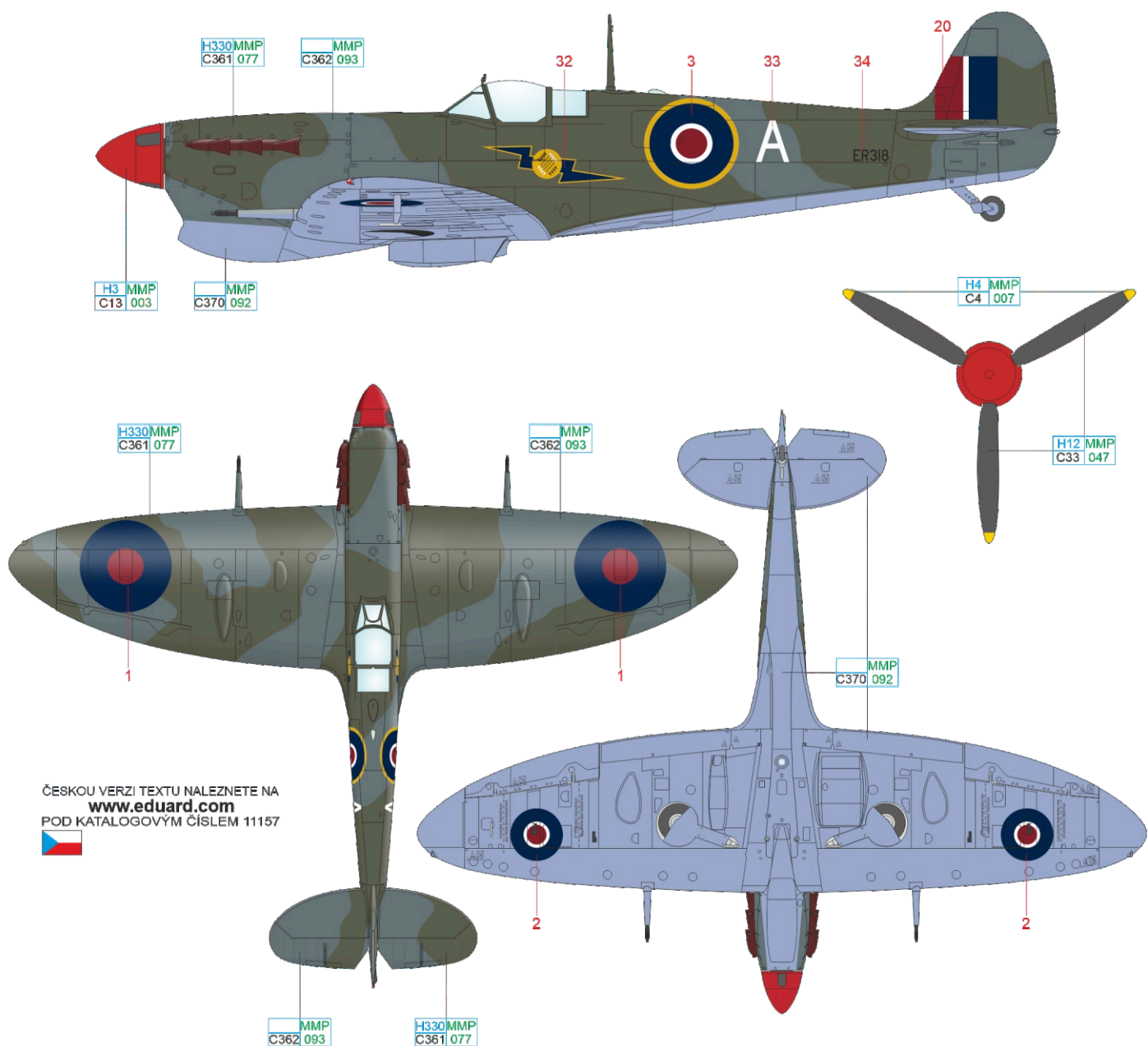
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| DARK EARTH | H72 MMP C369 078 | MIDDLE STONE | H71 MMP C21 076 | AZURE BLUE | MMP C370 092 | RED | H3 MMP C13 003 | BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 |
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B Spitfire Mk.Vb trop, ER318, P/O C. R. Furtney, No. 274 Squadron, Termoli, Italy, March 1944

No. 274 Squadron was reactivated in the second half of 1940 in Amreiya, Egypt. It started operations with mixture of Gladiators and Hurricanes, than, from October the same year, the unit retained only Hurricanes and joined the fighting over North Africa with them in December 1940. The unit received its first Spitfires in April 1943 and was fully rearmed in October. During the rearmament process, No. 274 Squadron moved to Cyprus, then a move to Italy followed in February 1944. Before moving to the UK, the unit took part in sweeps over Yugoslavia and Albania. A lightning bolt and a circular arrow emblem under the cockpit indicates affiliation to the unit.



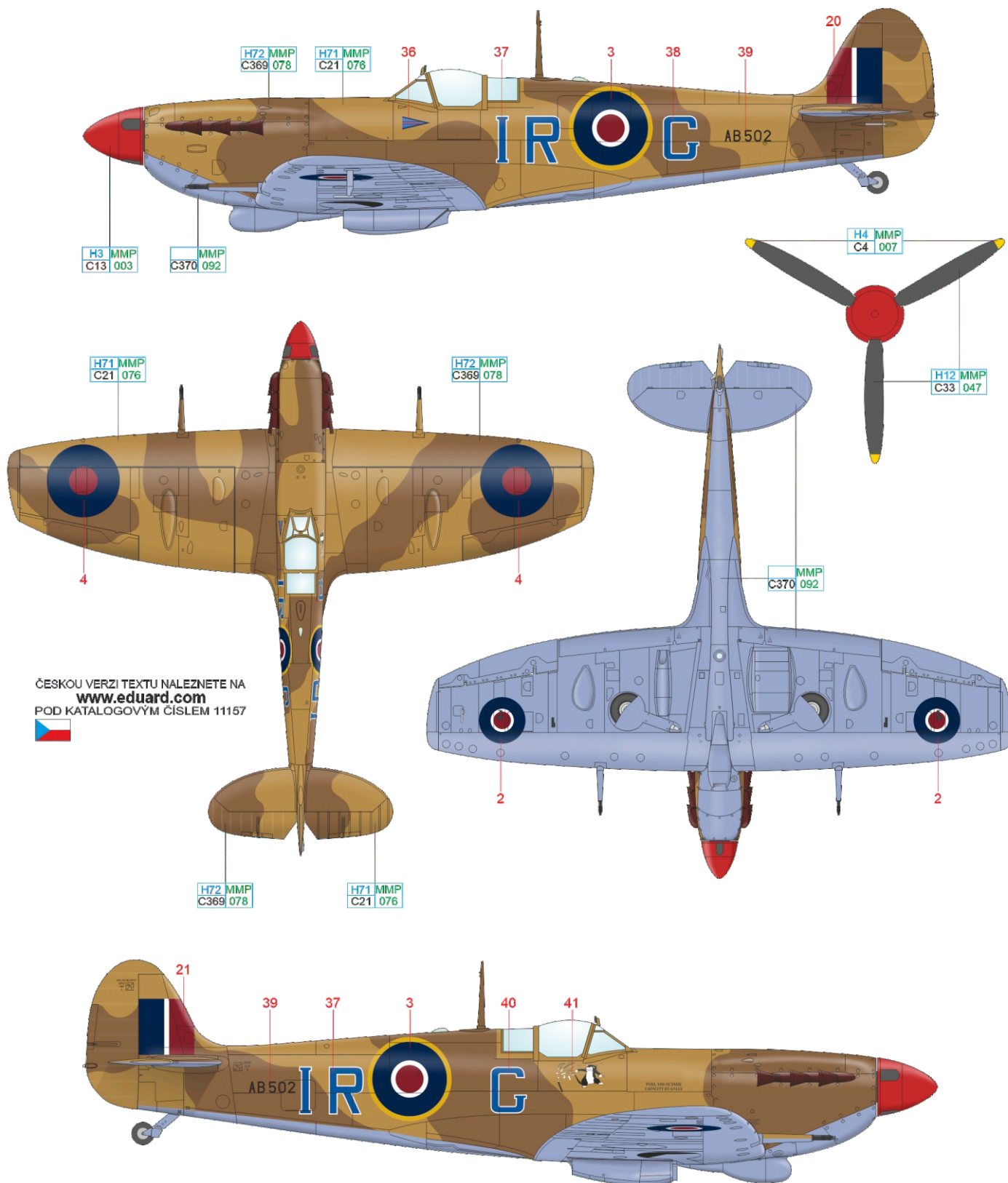
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| DARK GREEN | H330 MMP C361 077 | DARK GREEN | MMP C362 093 | AZURE BLUE | MMP C370 092 | RED | H3 MMP C13 003 | BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 |
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C Spitfire Mk.Vb trop, AB502, W/Cdr Ian Richard Glead, CO of No. 244 Wing, Bou Grara, Tunisia, March–April 1943

At the end of January 1943, Ian "Widge" Glead took command of No. 244 Wing in North Africa, the only unit comprising Spitfire units – Nos. 92, 145 and 601 Squadrons RAF, No. 417 Squadron RCAF and No. 1 Squadron SAAF. Glead was in command until April 16, when he was shot down during an afternoon patrol over the Cap Bon area. His defeater was probably Lt. Ernst-Wilhelm Reinert, the ace of JG 77. After being hit, Glead headed for the Tunisian coast with the damaged aircraft. His Spitfire AB502 was found on the sand dunes near the sea on the west coast of Cap Bon. However, his body was not found with the Spitfire, it was recovered later. What is certain is that he was first buried at Tazoghran and reburied at Enfidaville Military Cemetery on April 25, 1944. All of the planes Glead flew had a black cat painted on the starboard side, just below the cockpit. It was "Figaro", a character from the story of Pinocchio. The same was true of the two Aboukir tropical filter equipped Spitfires (ER170 and AB502) that Glead used as commander of No. 244 Wing. Both had also Glead's initials IR-G painted on the fuselage, rendered in Light Mediterranean Blue with white outline. During March and April 1943, Glead achieved his last kills in the cockpit of AB502 – one Bf 109G and two damaged Bf 109Fs. During his wartime career Ian Glead shot down a total of 16 aircraft. Seven more he downed probably and damaged four.



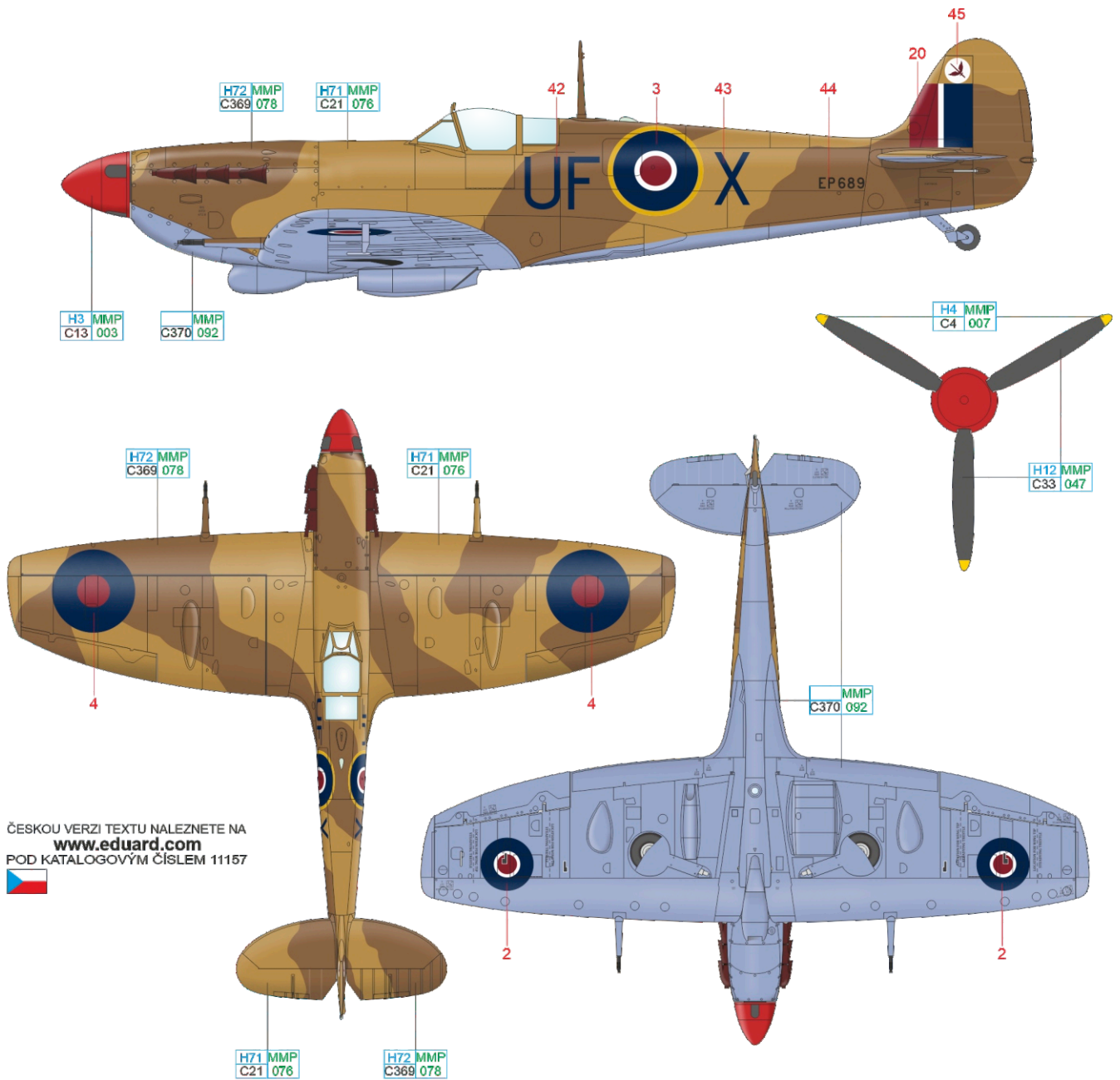
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D Spitfire Mk.Vb trop, EP689, S/Ldr Stanislaw Skalski, CO of No. 601 Squadron, Pachino, Italy, July 1943

Stanisław Skalski, the most successful Polish fighter pilot, was given command of No. 601 Squadron "County of London" in mid-July 1943. He became only the second Pole to be given command of an RAF squadron. During his three-month leadership of the unit, he used several Spitfires of different versions. One of them was EP689 with blue code marking UF-X, equipped with Aboukir tropical filter. No. 601 Squadron was one of the few to use these dust filters operationally. By the end of the war, Stanislaw Skalski had shot down 24 aircraft. He also shot down one aircraft probably and damaged five.



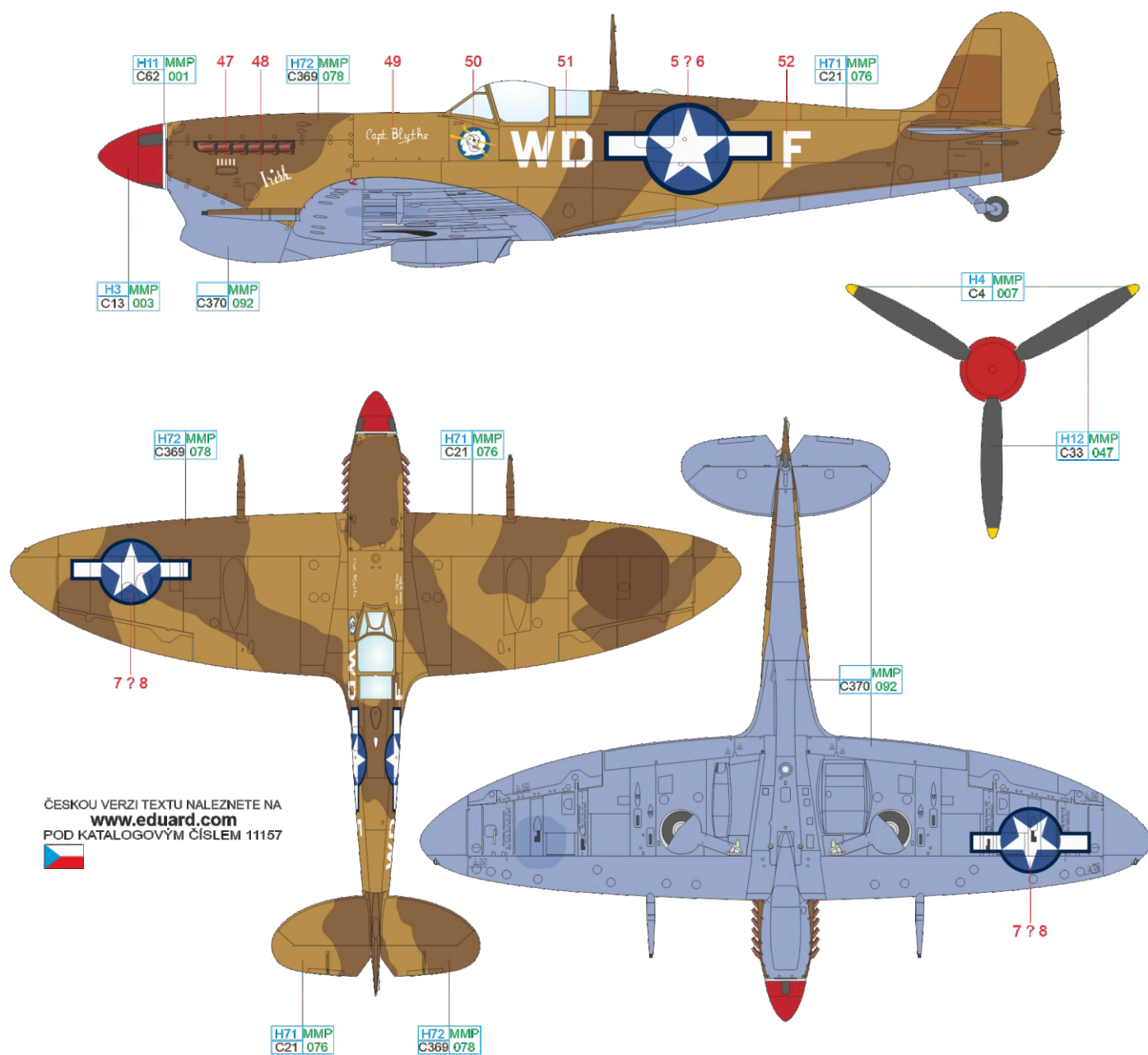
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E Spitfire Mk.Vc trop, Capt John K. Blythe, 4th FS, 52nd FG, 12th AF, North Africa, February 1943

The 4th Fighter Squadron was activated at Selfridge Field, Michigan, on January 15, 1941. The unit was equipped with P-39s and P-40s, used until July 1942. After a move to Northern Ireland pilots of 4th FS received British Spitfires. The unit was part of the 52nd Fighter Group, which was assigned to the North Africa theatre as a part of the 12th Air Force. On November 8, 1942, the invasion of Algeria and Morocco was launched, and the 4th FS was sent to an airfield in Algeria. The crew chief of this Spitfire, Sgt Kormos, arranged a Texas flag and his girlfriend's name to be painted on the nose. Note the exhaust pipes. This aircraft is fitted with the type that was used mostly on Mk.IX Spitfires.



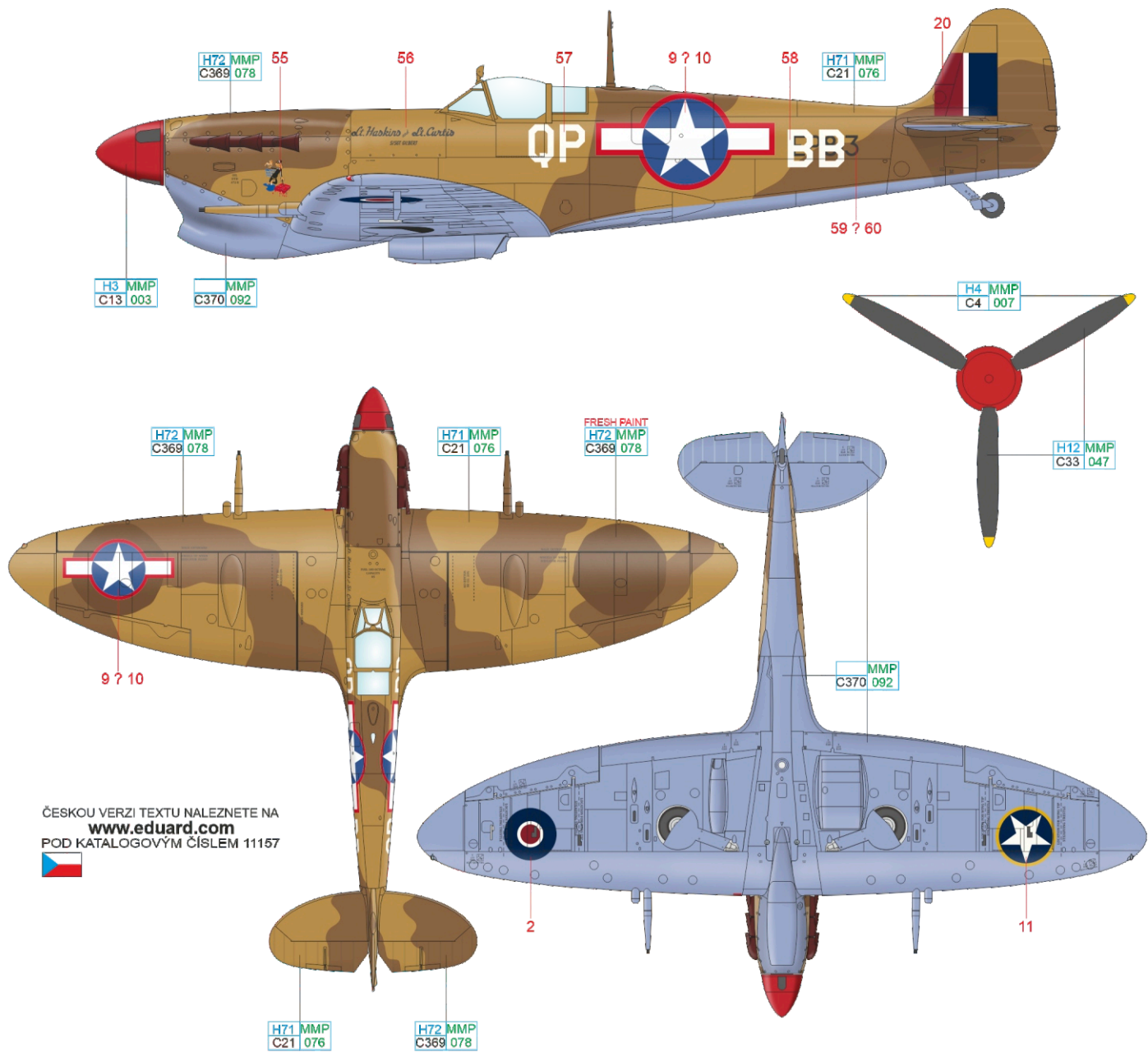
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| BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 |
| DARK EARTH | H72 MMP C369 078 | MIDDLE STONE | H71 MMP C21 076 |
| | AZURE BLUE | MMP C370 092 | RED |
| | H3 MMP C13 003 | WHITE | H11 MMP C62 001 |

F Spitfire Mk.Vc trop, EP813, Lt. Haskins/Lt. Curtis, 2nd FS, 52nd FG, Palermo, Sicily, 1943

In June 1943, when the 2nd Fighter Squadron was based at La Sebala airfield in Tunis, its members named it the American Beagle Squadron as a joking counterpart to the more famous Eagle Squadrons. The American Beagle Squadron emblem was painted on several 2nd FS Spitfires and was carried on the nose of the machine flown by Lieutenants Hasins and Curtis. It should be said, however, that the entire 52nd FG was not lagging behind its more famous colleagues from the 8th Air Force, and its performance on both Spitfires and Mustangs (after being transferred to the 15th Air Force) made a significant mark in the history of American aviation.

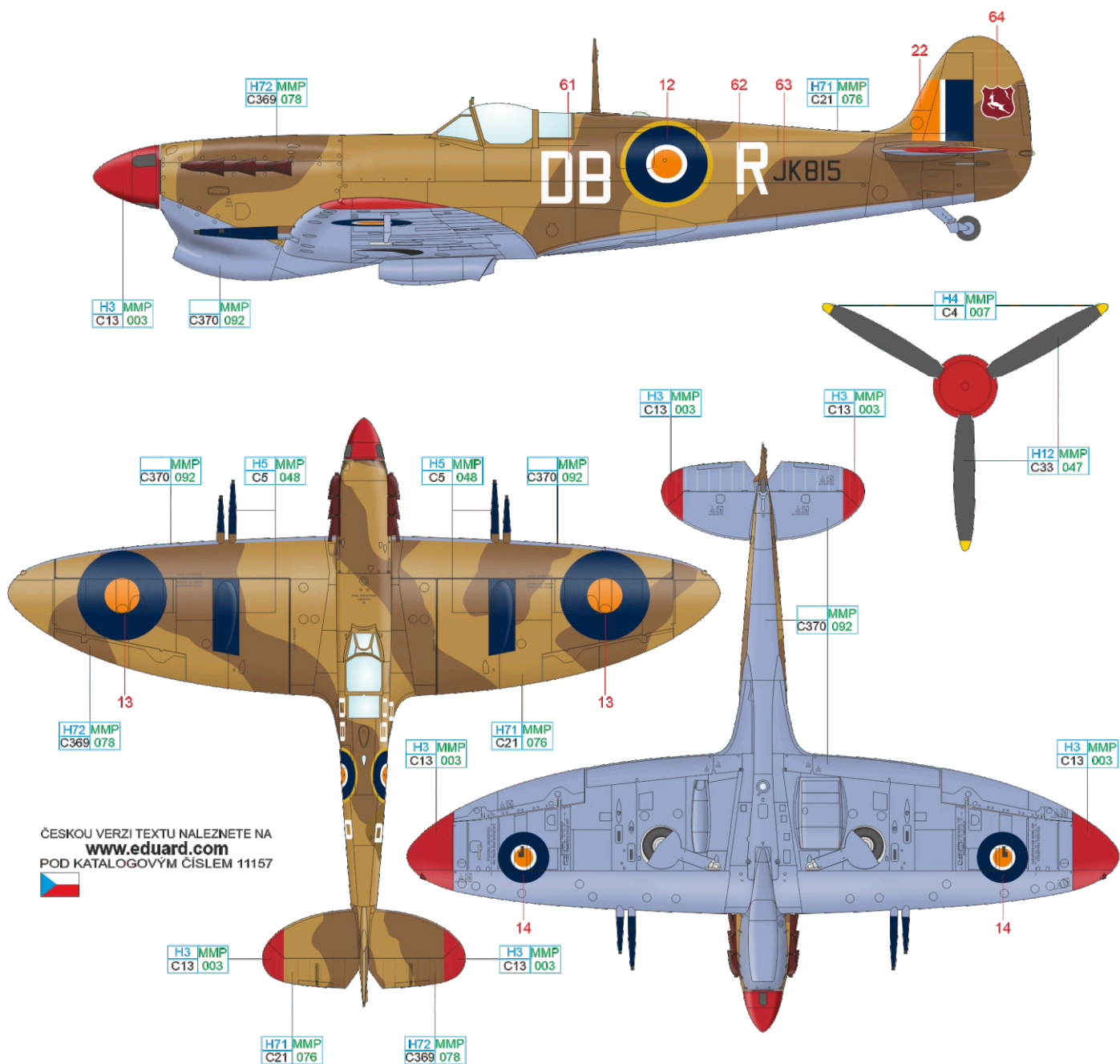


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South African No. 2 Squadron SAAF took delivery of its first Spitfires Mk.Vc in July 1943. As the unit was tasked with the supporting the Allied landings in Sicily, it was one of the few squadrons to use the heaviest possible armament on its Spitfires, which consisted of four 20mm cannons. This firepower was extremely effective in attacking enemy ground vehicles. The South African Spitfires carried an additional 250lb or 500lb bomb on the fuselage rack for combat operations. A specific color feature of the No. 2 Squadron SAAF Spitfires was the overlay of the lower camouflage Azure Blue color on top of the leading edge of the wing and the red wingtips as well as horizontal stabilizer tips. The rudder is decorated with the unit's crest, an antelope on a red background.

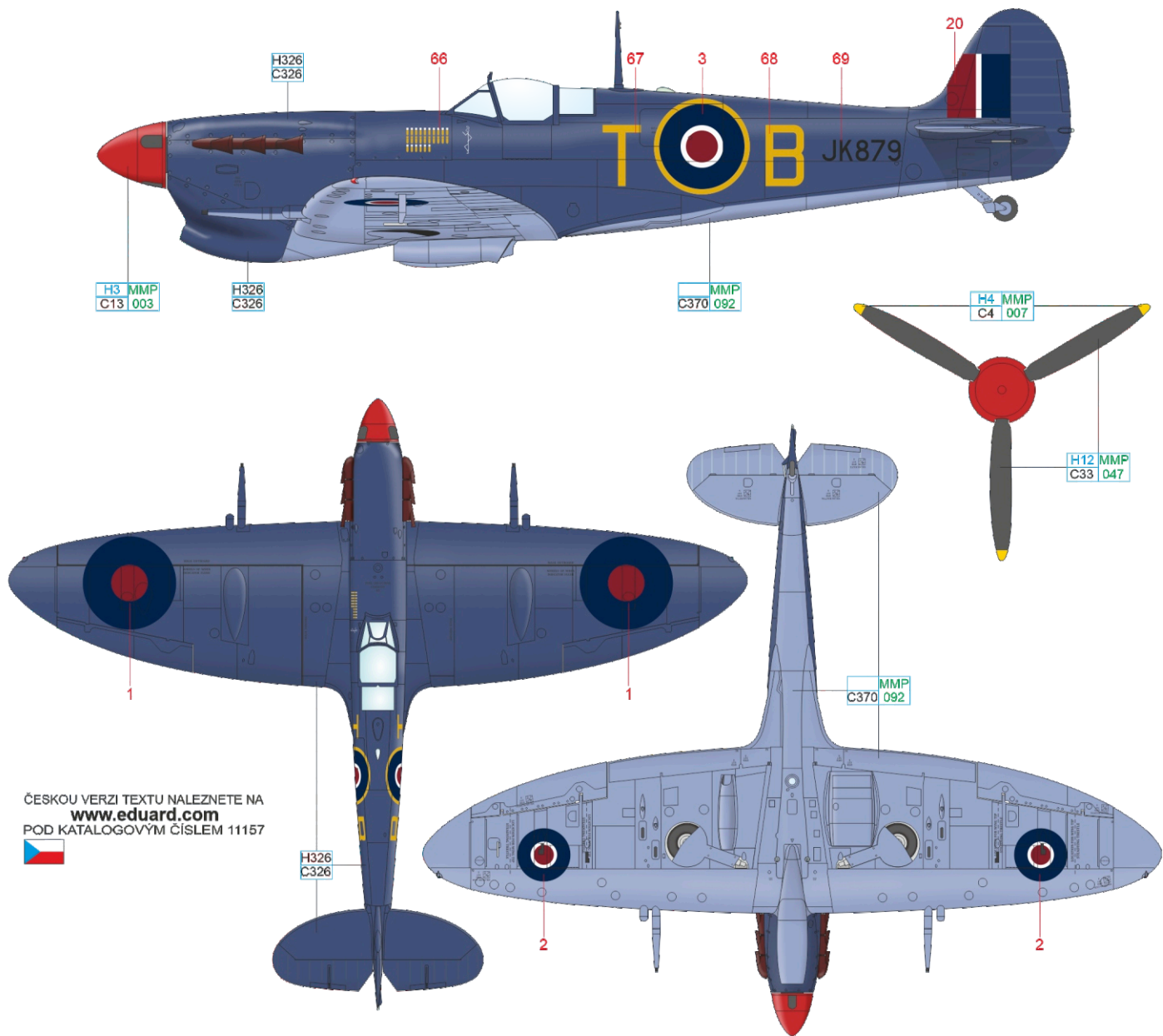


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| BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 |
| DARK EARTH | H72 MMP C369 078 | MIDDLE STONE | H71 MMP C21 076 |
| | AZURE BLUE | MMP C370 092 | RED |
| | H3 MMP C13 003 | BLUE | H5 MMP C5 048 |

H Spitfire Mk.Vc trop, JK879, F/O A. F. Osborne, No. 249 Squadron, Qrendi, Malta, May-June 1943

F/O Osborne scored his only kill on April 28, 1943 when, during an early morning sweep, him and Squadron Leader J. J. Lynch spotted two low-flying Ju 52/3m Junkers transport aircraft off the coast of Sicily. Lynch attacked and shot down one of them, thus securing his place in the historical archives as the author of the 1,000th kill in the Malta defense operations. Lynch rejoined Osborn after his victory and together they shot down a second Ju 52/3m which crashed into the sea. Osborne was later successful in fighting V-1 flying bombs. He shot down six of them flying a Mustang Mk.III with No.129 Squadron during summer of 1944. The Spitfires delivered to Malta sported several different types of camouflage. One of them was this scheme, with the upper and side surfaces sprayed in Dark Mediterranean Blue, while the lower surfaces were Azure Blue. The red cone indicated aircraft operating in Mediterranean theatre.



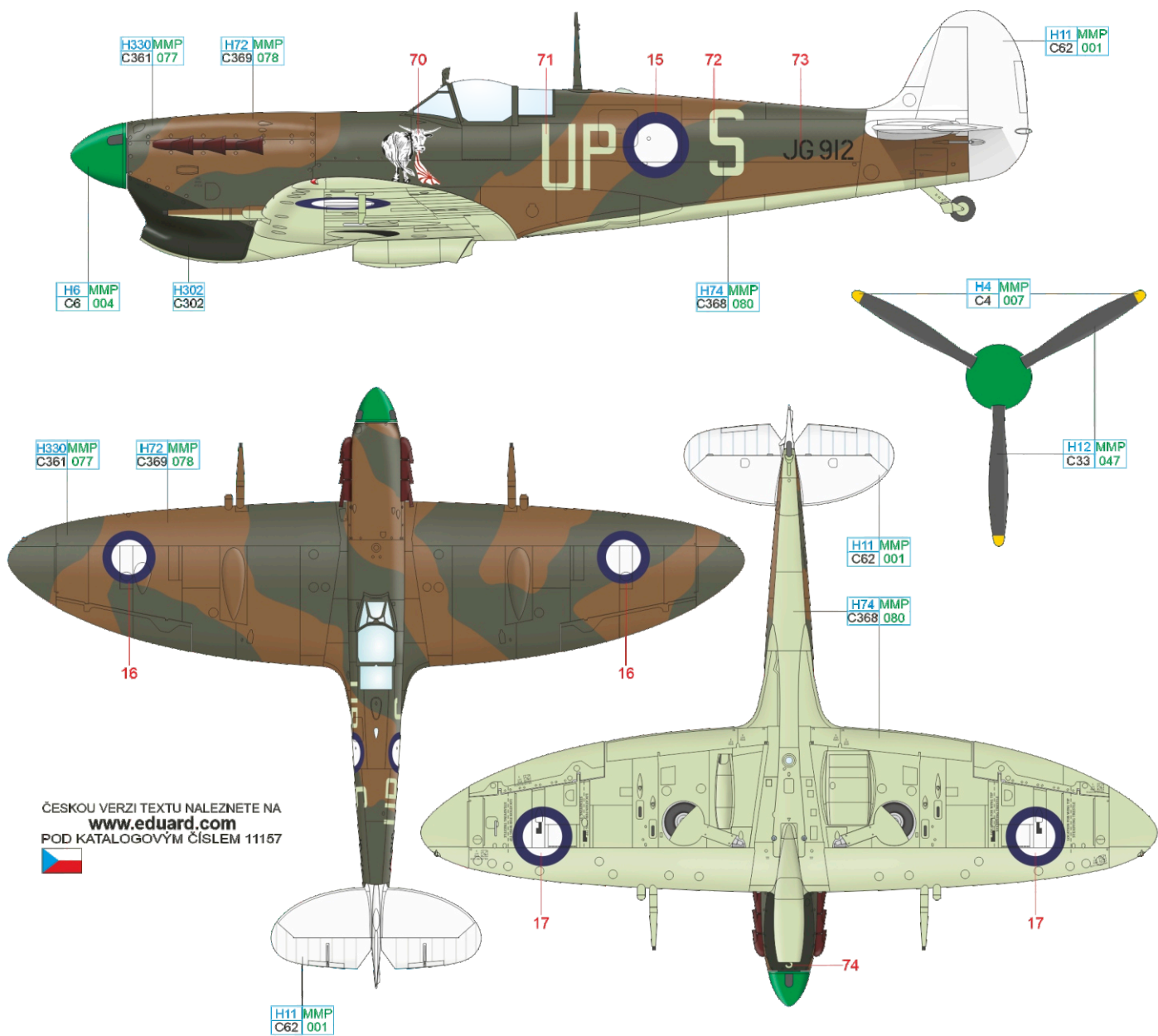
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| DARK BLUE | H326 C326 | AZURE BLUE | MMP C370 092 | RED | H3 MMP C13 003 | BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 |
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Spitfire Mk.Vc trop, A58-180 (JG912), No. 79 Squadron RAAF, Kiriwina, Trobriand Islands, October 1943

Australian No. 79 Squadron RAAF was formed at Laverton Base, Victoria, on April 26, 1943, and its role was to provide high-altitude cover for the Kittyhawks of Australian forces during the New Guinea campaign. The unit received Spitfires Mk.Vc in priority and in mid-May 1943 began moving to Goodenough Island, from where it undertook flights to New Guinea. This was followed by a move to Kiriwina Island, at that time the nearest Allied base from the Japanese-occupied important port on the island of New Britain. From Kiriwina, Spitfires operated over New Britain until March 1944, when No. 79 Squadron moved to Los Negros, one of the Admiralty Islands. Spitfire Mk.Vc serial JG912 arrived in Australia on April 13, 1943, and was assigned to No. 79 Squadron on May 7. The white tail surfaces were sign of aircraft operating in the New Guinea area.



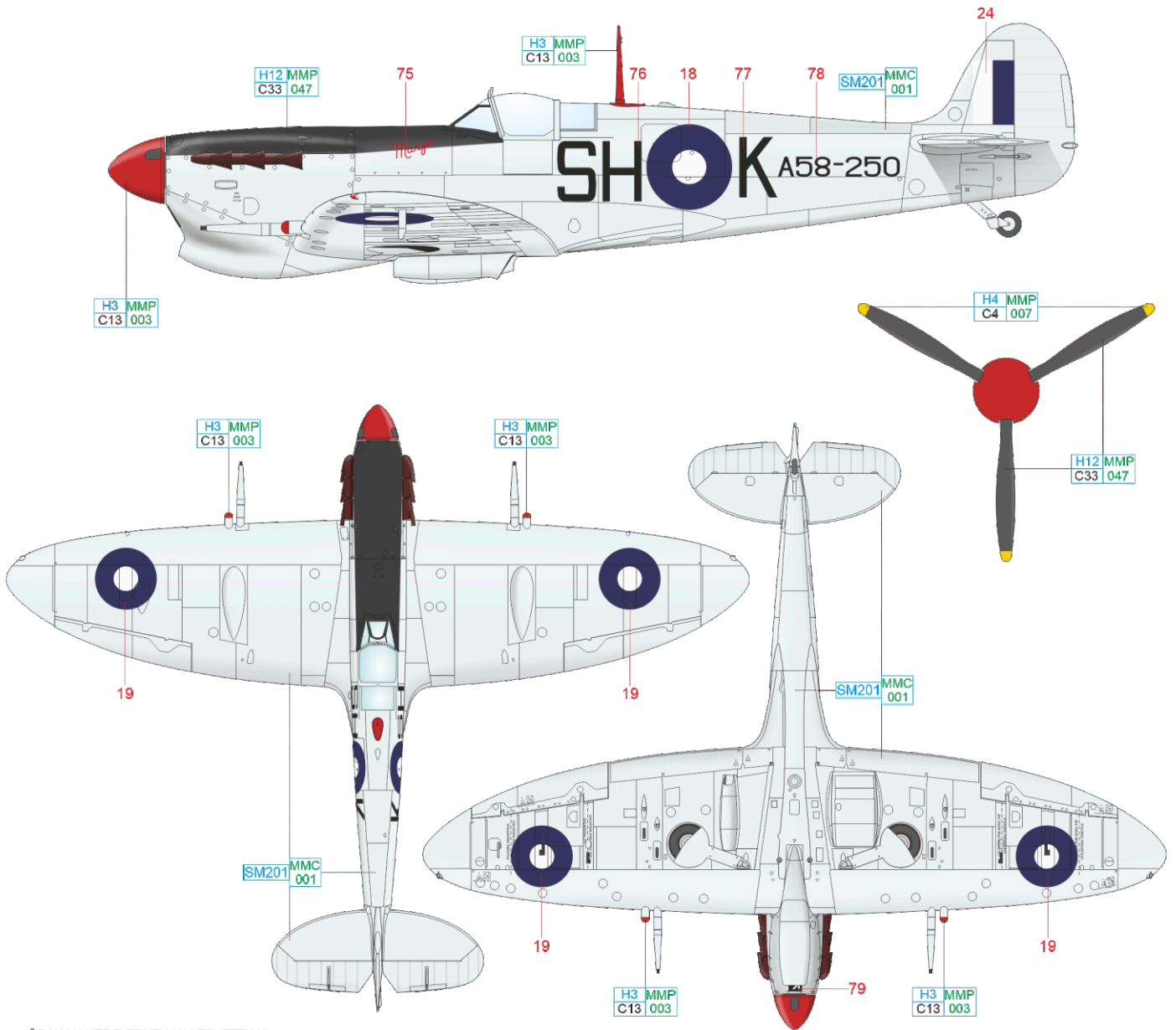
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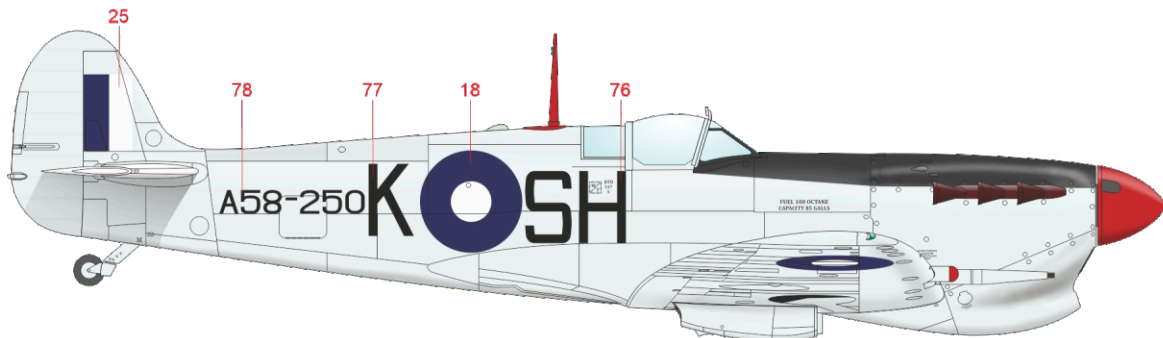
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| BLACK | H12 MMP C33 047 | YELLOW | H4 MMP C4 007 | |
| DARK GREEN | H330 MMP C361 077 | DARK EARTH | H72 MMP C369 078 | |
| SKY | H74 MMP C368 080 | WHITE | H11 MMP C62 001 | |
| | GREEN | H6 MMP C6 004 | GREEN | H302 C302 |

J A58-250 (MH586), No. 85 Squadron RAAF, Pearce, Australia, May 1945

Australia's No. 85 Squadron RAAF, originally armed with home-built Boomerangs, began rearmament to Spitfires in September 1944. Unlike other RAAF units that received Mk.VIII Spitfires, No. 85 Squadron was rearmed with Mk.Vc Spitfires. A move to RAAF Base Pearce in Western Australia followed on May 11, 1944 where the unit remained until its disbandment on November 29, 1945. The Spitfire Mk.Vc marked A58-250, operated with No. 457 Sqn RAAF from February 4, 1944 before transferring to No. 85 Squadron RAAF. It was used there as personal mount by B Flight Commander F/Lt Alf Glendining. For the last time the A58-250 was flown by W/O Gray on May 23, 1945. Pilot damaged this Spitfire on landing and while he escaped unscathed, the aircraft was written off and used as a source of spares.

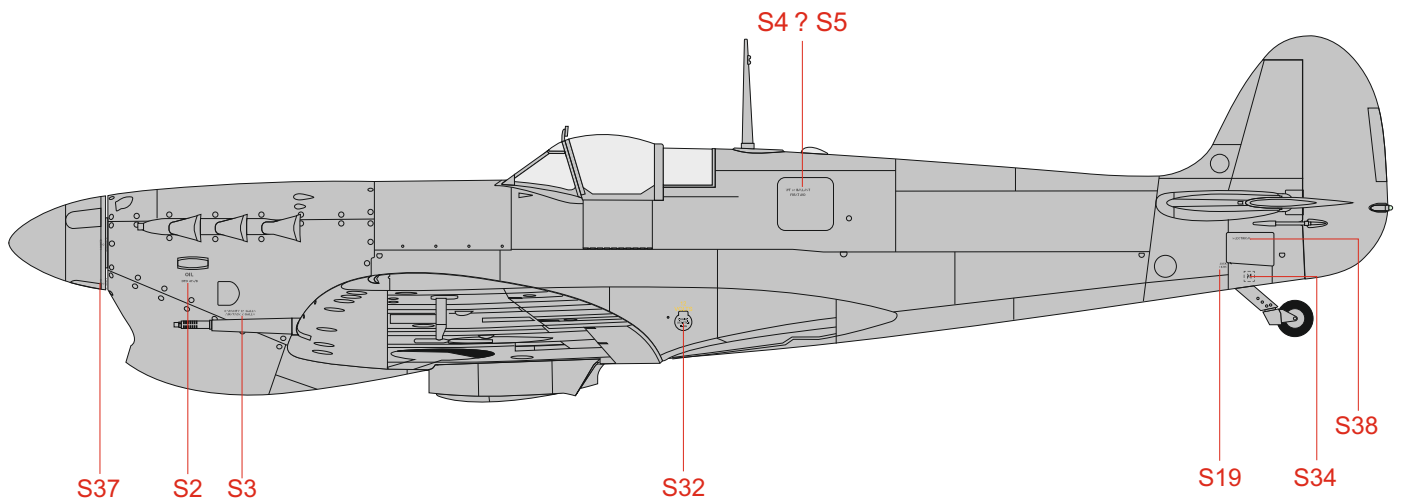
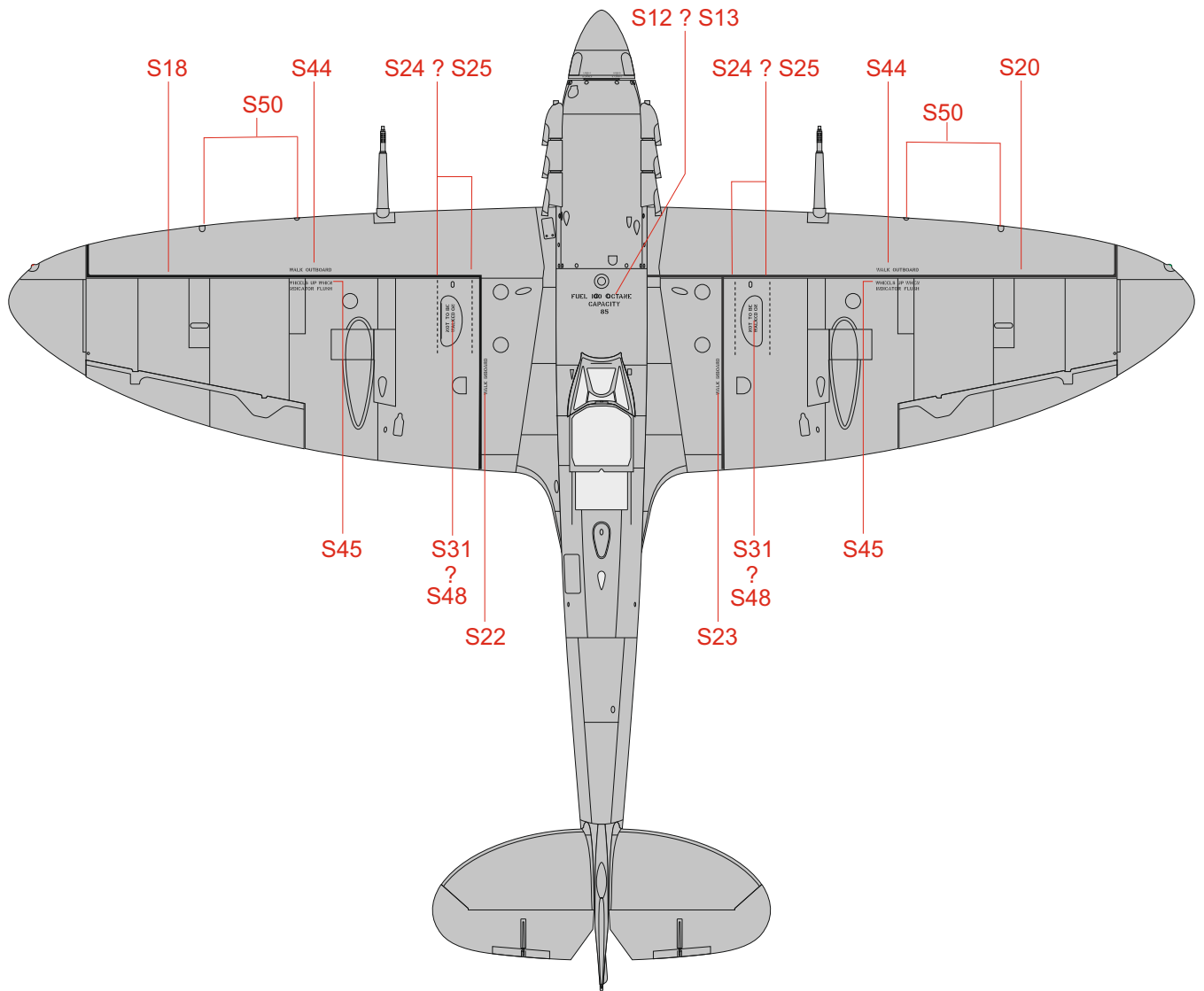


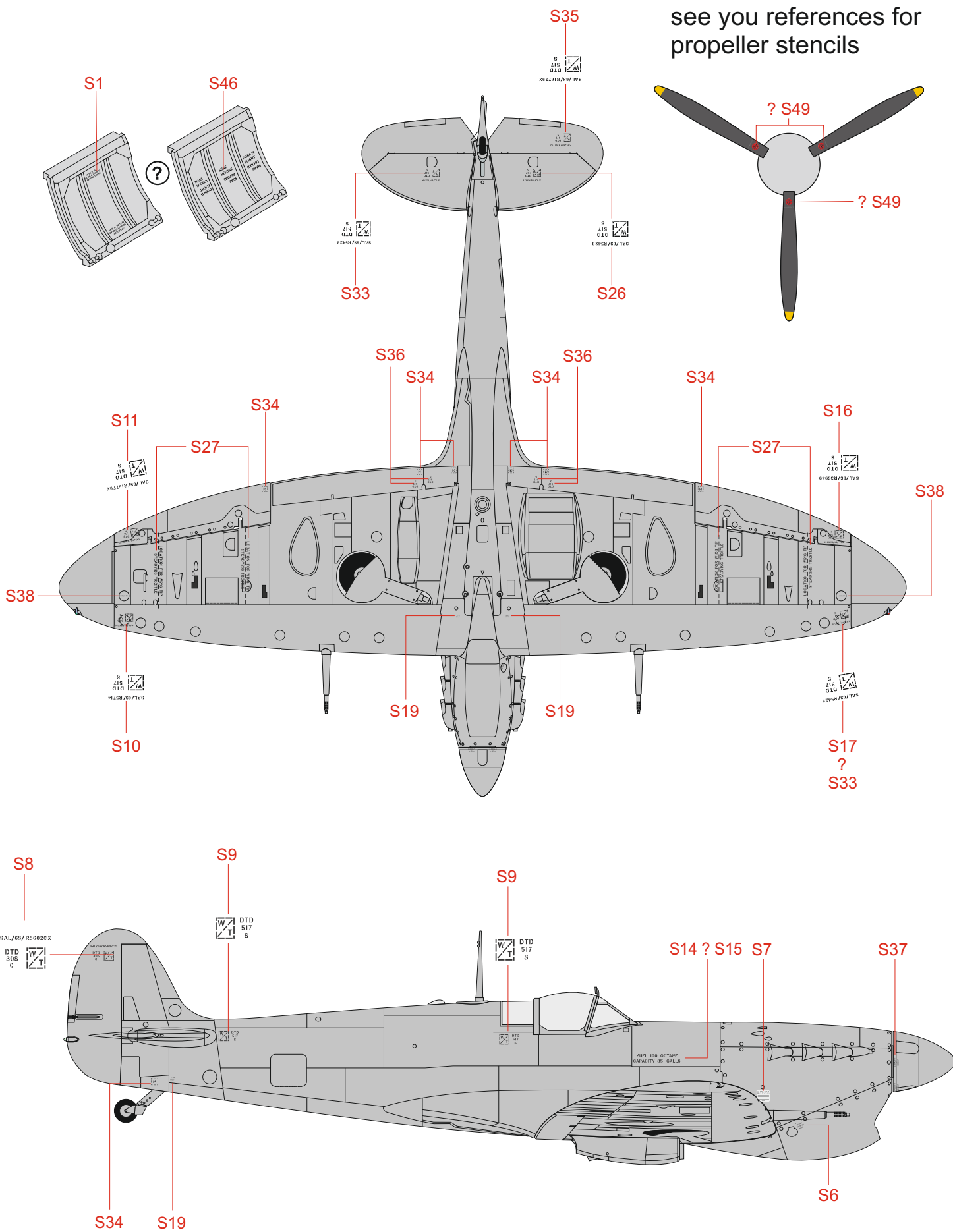
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SUPER FINE SILVER SM201 MMC 001 BLACK H12 MMP C33 047 RED H3 MMP C13 003 BLACK H12 MMP C33 047 YELLOW H4 MMP C4 007

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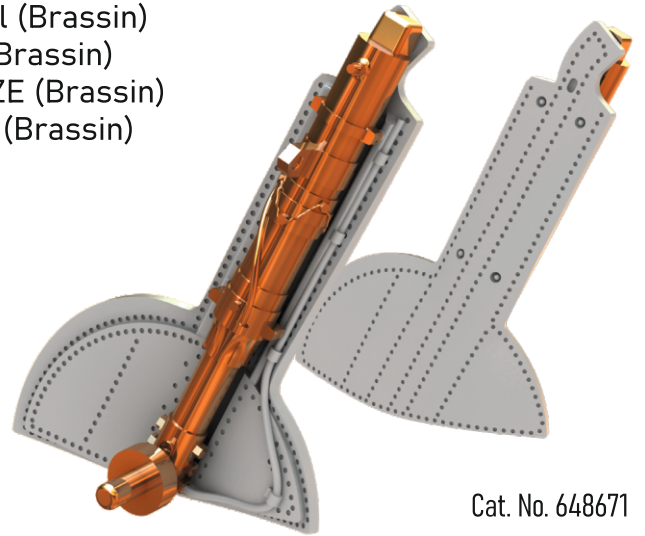




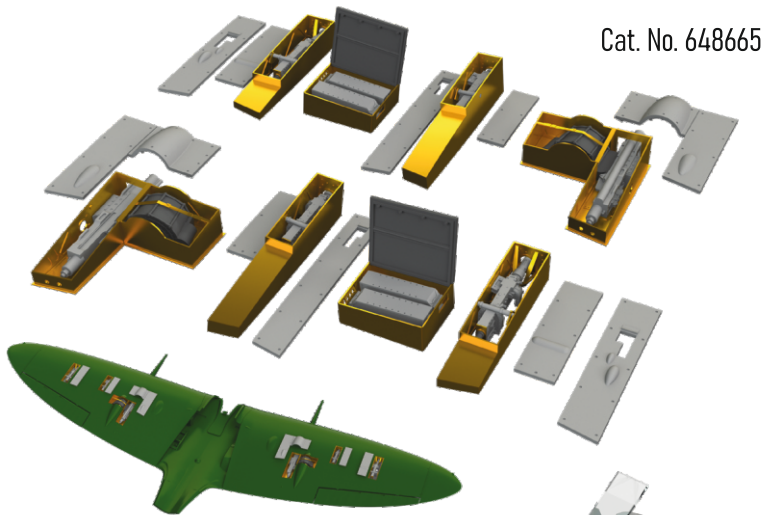
NOTES

- 481065 Spitfire Mk.V landing flaps (PE-Set)
- FE1207 Spitfire Mk.V seatbelts STEEL (PE-Set)
- 644113 Spitfire Mk.V LööK (Brassin)
- 648098 Spitfire wheels - 5 spoke (Brassin)
- 648119 Spitfire wheels - 5 spoke, smooth tire (Brassin)
- 648640 Spitfire Mk.V engine (Brassin)
- 648663 Spitfire Mk.V cockpit (Brassin)
- 648664 Spitfire Mk.V wheels (Brassin)
- 648665 Spitfire Mk.Vb gun bays (Brassin)
- 648666 Spitfire Mk.Vc gun bays (Brassin)
- 648667 Spitfire Mk.V three-stacks exhausts rounded (Brassin)
- 648668 Spitfire Mk.V three-stacks exhausts fishtail (Brassin)
- 648669 Spitfire Mk.V six-stacks exhausts fishtail (Brassin)
- 648670 Spitfire Mk.Va/b undercarriage legs BRONZE (Brassin)
- 648671 Spitfire Mk.Vc undercarriage legs BRONZE (Brassin)
- D48088 Spitfire Mk.V stencils (TFace)

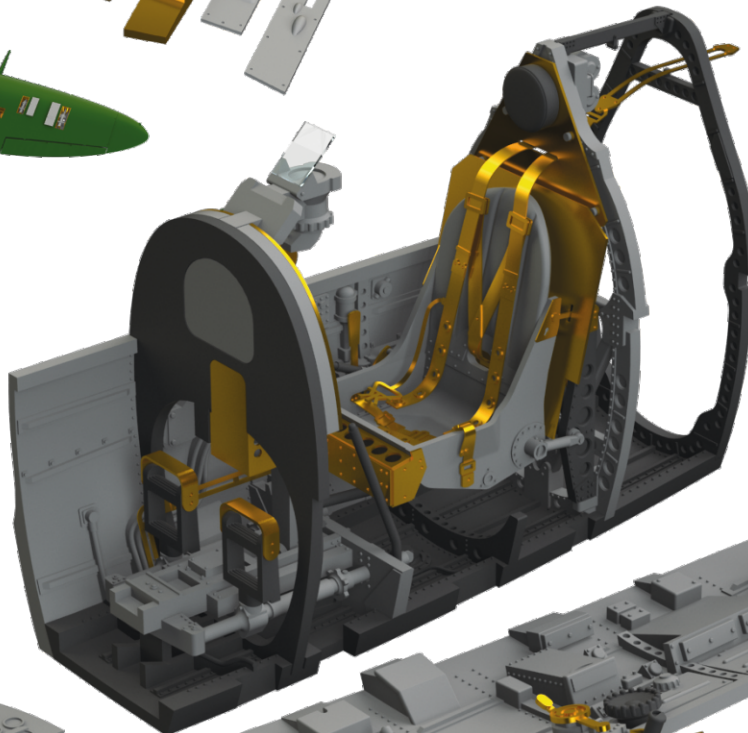
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