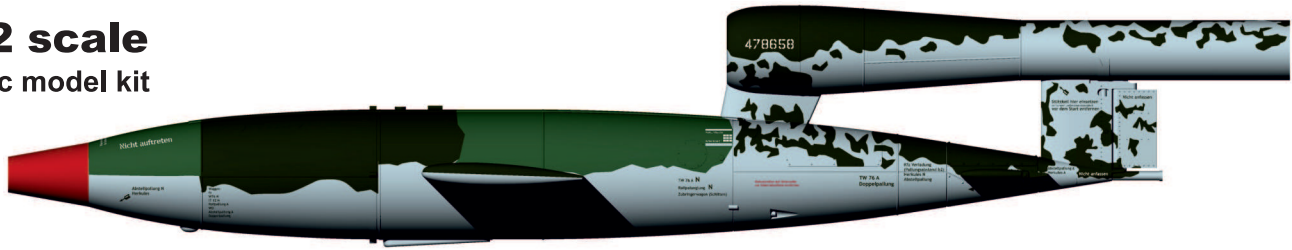


**1/32 scale  
plastic model kit**



## Fieseler Fi 103 (FZG 76) / V-1

*instructions*



Malý bezpilotní letoun Fieseler Fi 103 se stal první hitlerovou "odvetnou zbraní" a díky tomu je mnohem známější pod zkratkou V-1. Vývoj byl zahájen na základě objednávky velení Luftwaffe z 5.6.1942 na letounovou stělu s doletem 250 km a nosností 800-1000 kg výbušnin. První prototyp vzletl již 24.12.1942. Protože šlo o jednorázový prostředek byla konstrukce jednoduchá. Štíhlý doutníkový trup nesl v přední magnetický kompas a nálož, za ní pak byly řazeny nádrže paliva, stlačeného vzduchu, baterie a řídicí systém. Křídlo s trubkovým nosníkem mělo obdélníkový tvar, stejně jako ocasní plochy. Nad trupem byl montován pulzační motor Argus As 109-014, vetknutý do vrcholu svislé ocasní plochy. Hlavním konstrukčním materiálem byla ocel. Střela musela být vypálena z katapultu rychlostí kolem 370 km/h, aby se rozeběhl náporový motor. Nastavená délka letu byla měřena otáčkami vrtulky v předí. Po uletění určené vzdálenosti se vrtulka zastavila, došlo k přerušení přívodu paliva, kormidla se přestavila do polohy, aby došlo k pádu a střela se zřítila na cíl. Přesnost byla ale nevalná. Střely byly poměrně dlouho chystány k bojovému nasazení, nakonec k němu došlo až po spojeneckém vylovení do Francie. 155. protiletadlový dělostřelecký pluk pod vedením plk. Wachtela zahájil palbu na Londýn. Vzhledem k tomu, že střely měly poměrně omezený dolet a spojenci postupovali Francií, tak byly posleze střelami V-1 odstřelovány města Antverpy, Lutych a Brusel. Spojenci museli nasadit poměrně velké letecké síly k eliminaci střel V-1. Ať už šlo o bombardéry, které útočily na startovací katapulty, tak stíhačky sestřelující střely ve vzduchu. Mimo střelby byla používána i taktika převrácení střely koncem křídla. Velkou výchylku střely nedokázaly gyroskopy srovnat a střela se tak zřítila předčasně. Proti střelám byly masivně nasazeny i jednotky protivzdušné obrany. Po obsazení francouzského území a ztrátě katapultovacích základen byly střely V-1 odpalovány z letadel. Jako nosiče sloužily Heinkely He 111 jednotky KG 53.

Fi 103 byl vyráběn v několika verzích A, B-1, B-2, C, E a F. Střely se lišily vnitřním vybavením, hmotností a druhem nesené nálože či doletem. Vnějšíkově byly prakticky stejné. Vyjimku tvořily pilotované varianty Fi 103A-1/Re-3 (dvoumístná cvičná) a Fi 103/Re-4 (jednomístná bojová). Vývoj pilotovaných střel byl zhájen na začátku roku 1944. V září 1944 byl z dobrovolníků sestavena jednotka 5./KG 200 (Leonidas Staffel). Ti měli, po odpalu střely z He 111 navést střelu na cíl a pak opustit kabinu na padáku. V podstatě se ale jednalo o sebevražedný letoun. V říjnu 1944 byla ale 5./KG 200 rozpuštěna a k nasazení Fi 103/Re-4 nedošlo.

rozpětí: 5,33 m, délka: 7,90 mk, max. rychlost: 650 Km/h, max. dolet 240 až 270 km, bojová hlavice 850 kg výbušnin

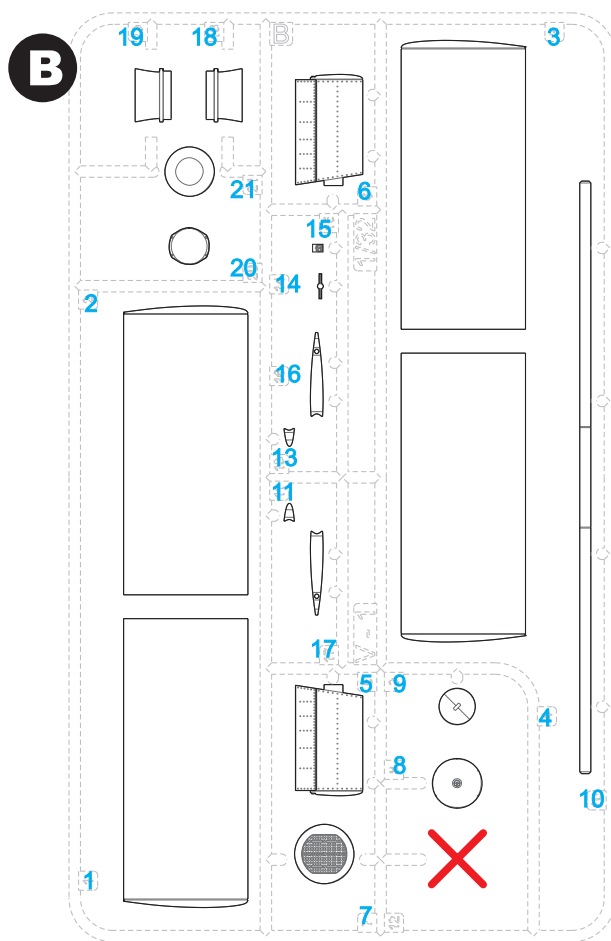
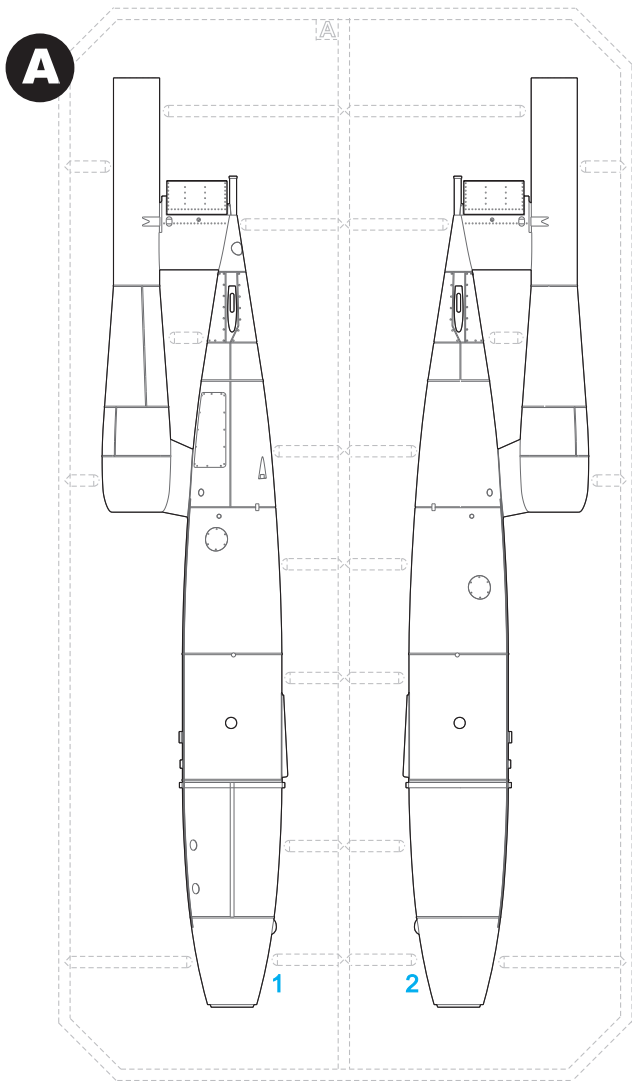


The Fieseler Fi 103 small unmanned aerial vehicle was the first of Hitler's so-called Vengeance Weapons, or Vergeltungswaffe and so is commonly known as the V-1. Its development dates back to 5 June 1942 when the German Luftwaffe placed an order calling for an aircraft-type missile with capability to carry an 800-1000kg warhead to a distance of 250km. The prototype first took off on 24 December 1942. As the Fi-103 was meant to be a one-off device, its construction was kept as simple as only possible. The slim cigar-shaped fuselage carried a gyrocompass and a warhead in its nose compartments while the mid and aft fuselage sections were fitted with fuel tanks, compressed air tanks, electric batteries and a guidance system. The plywood, rectangular-shaped wings had a tubular steel main spar, the empennage was also very simple and rectangular shaped. Above the fuselage, directly on top of the vertical fin, the aeroplane's Argus As 109-014 pulse jet power plant was located. Except for the wooden planes, the entire missile was constructed using steel. A land-based ramps were to be used for getting the missiles airborne because of insufficient static thrust of the engine and high stall speed of the small wings. Once the engine was started up on the ramp, it could operate even at zero air-speed because of the system of air intake shutters and acoustically tuned resonant combustion chamber. The missile would leave the ramp at about 370kmh, the length of the flight was measured and controlled using a small, air driven propeller at the nose which after a certain number of revs shut off the supply of fuel to the ramjet and also the control surfaces were deployed so that the missile fall onto the target. The accuracy with which the missiles hit their targets was rather poor. It took quite long time before the Fi 103/V-1 became combat ready, they were first used just after the Allied landing in France when no.155 Anti-aircraft Artillery regiment, commanded by Oberst (col.) Wachtel targeted the capital of the UK, London. As the range of V-1s was rather restricted and the Allies advanced successfully through France, it became necessary to chose a different target, located within the missile's range. In the end, such cities as Antwerp, Liège and Brussels were made the targets for the V-1s' terror bombing. The Allies were forced to deploy substantial amount of their aerial might to try and stop those attacks, either by bombing the launch sites or using fighter aircraft to shot the airborne missiles down. Not only would the fighters use their guns in a standard way, they also used rather rare approach as they got near the V-1, placed their wing tip beneath that of the missile and simply toppled it. The guidance system gyroscopes were not able to keep the missile on course and level and it effected in a premature crash of the missile in uninhabited areas. Allied anti-aircraft defence units were also used, and in quite large numbers, to stop the attacking missiles. When the territory of France was completely liberated by the Allies and the Germans lost all their launching sites, they began using He-111 bomber aircraft of KG53 unit to launch the missiles while flying in the air.

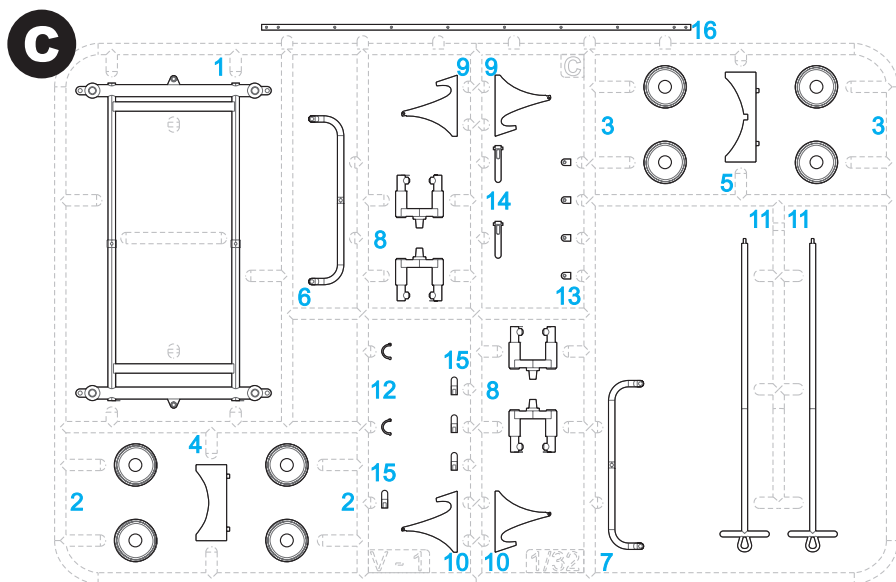
The Fi 103 unmanned aerial vehicles were produced in several slightly differing versions, the Fi 103A, B-1, B-2, C, E and F. What made them different was the internal equipment, the type of their warhead and its weight and the range. Externally, all these versions were almost indistinguishable from each other, just with the exception of the Fi 103/Re4 and Fi 103A-1/Re-3, which were piloted versions of the V-1, the earlier being standard attack version and the later was supposed to carry a crew of two, an instructor pilot and a trainee. The development of the piloted versions commenced in early 1944 and in September 1944 a unit of volunteers was formed, known as 5./KG200 (Leonidas Staffel). The idea was that following the missile being launched from a He 111, the pilot would guide the bomb to the vicinity of the intended target and then bail out of the cockpit. Needless to say, although it sounded feasibly, such a flight would be nothing else than a suicide. In October 1944, 5./KG 200 was disbanded before any Fi 103/Re-4 could do any harm.

Span: 5.33m, length: 7.90m, top speed: 650 kmh, max. range 240 to 270km, warhead: 850kg of explosives

# Parts List



not to be used



## Photo Etched Parts - PE



## Barvy GUNZE/ GUNZE Colour No.

<b>A</b>	Barva kovu / Metal	H8/C8
<b>B</b>	Opálený kov / Burnt Iron	H76/C61
<b>C</b>	Černá / Black	H12/C33
<b>D</b>	Žlutá / Yellow	H4/C4
<b>E</b>	Červená základová / Red Primer	H414/C114
<b>F</b>	Tmavý kov / Dark metal	H28/C78
<b>G</b>	Šedivá / Panzergrau	H32/C40

## SYMBOLS



MOŽNOST VOLBY  
OPTIONAL  
NACH BELIEBEN  
OPTION



POUŽÍT KYANOAKRYLÁTOVÉ LEPIDLO  
INSTANT CYANOACRYLATE GLUE  
ZYANOAKRYLÁTKLEBER  
ADHÉSIF CYANOACRYLAT



OHNOUT  
BEND  
BIEGEN  
COURBER



ZHOTOVIT NOVÉ  
SCRATCH BUILD  
FERTIGSTELLEN  
ACHEVER

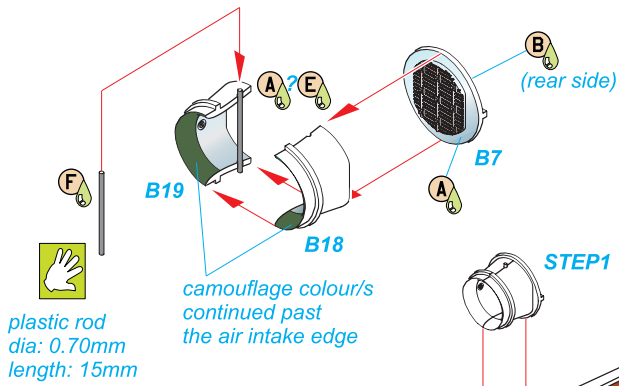
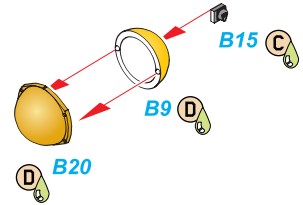
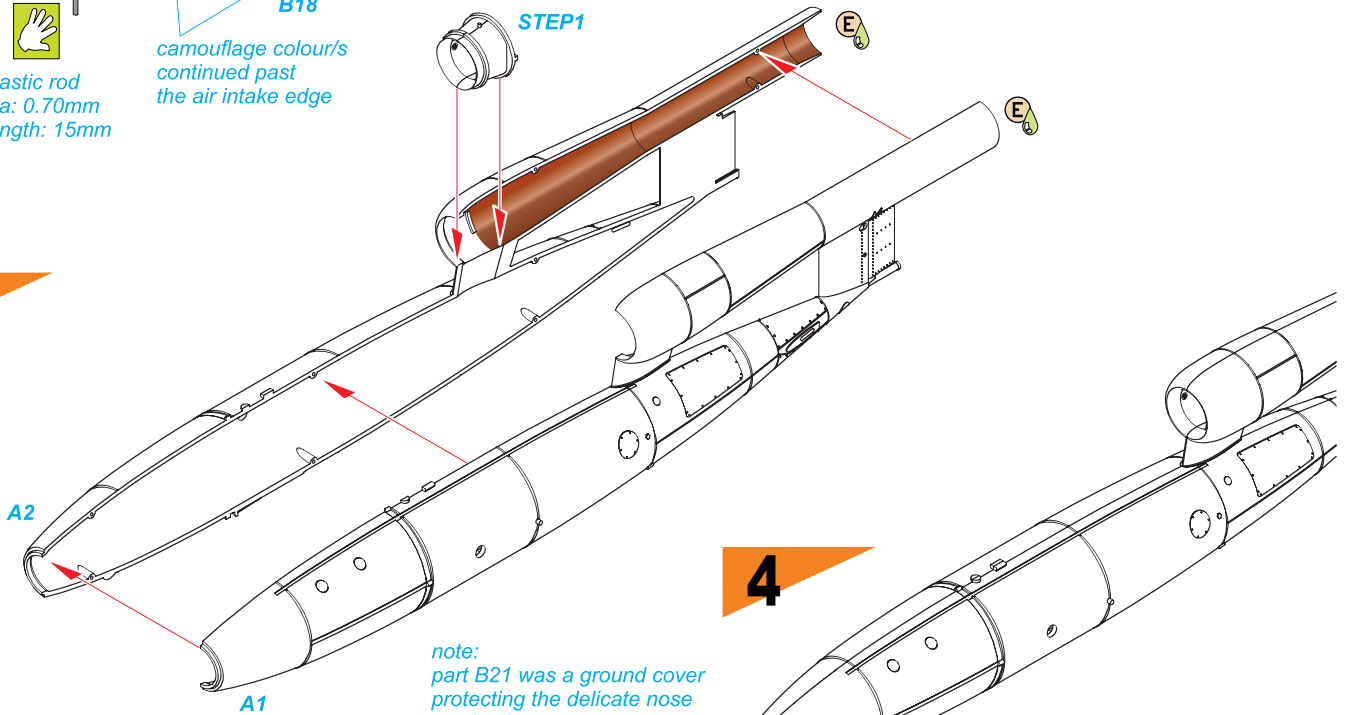
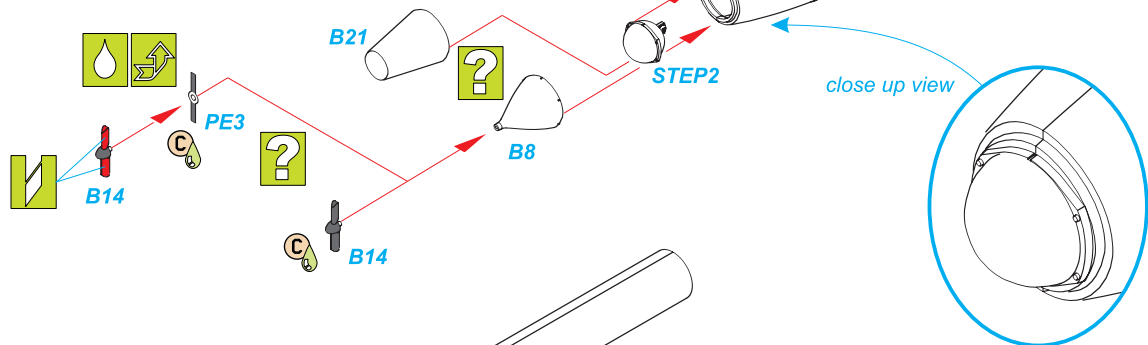
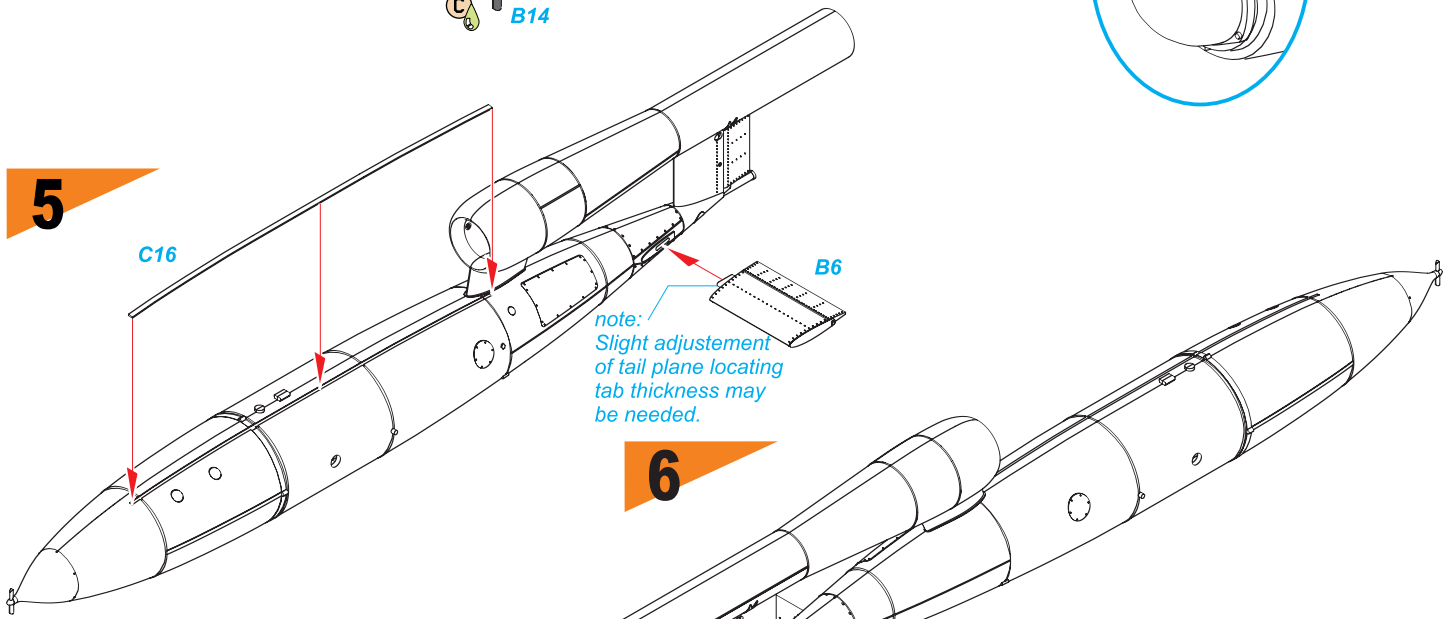
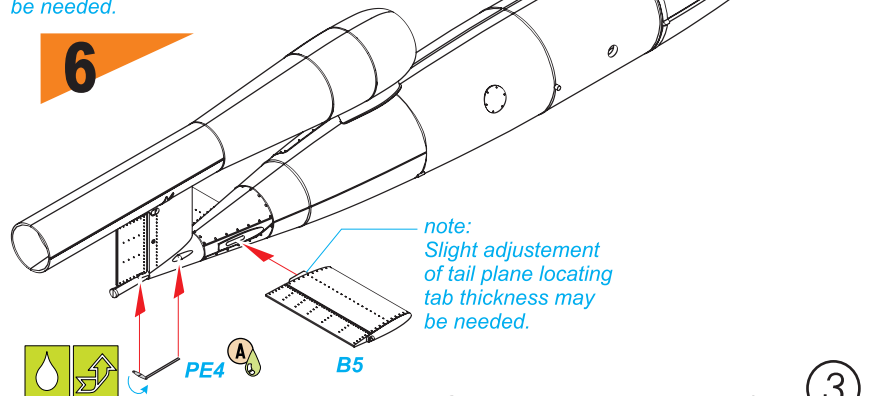


ŘEZAT/VRTAT  
CUT OFF/DRILL  
ENTFERNEN  
DETACHER

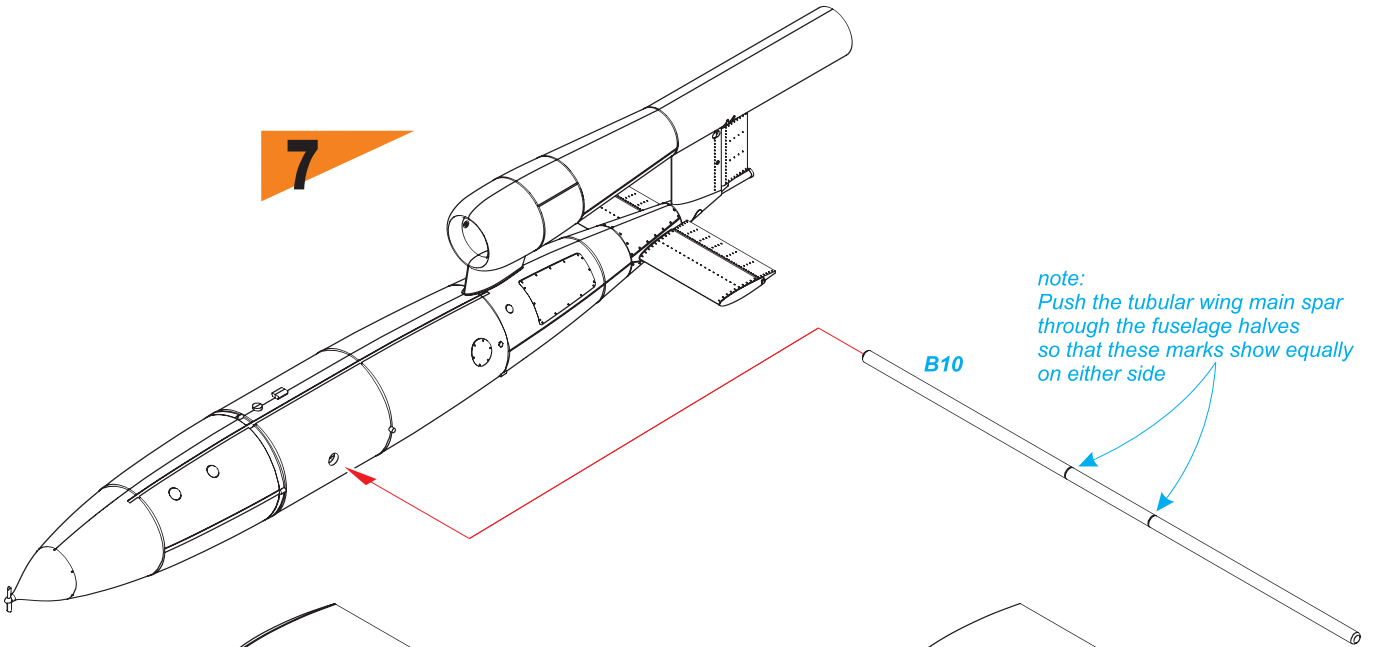


NATRÍT  
COLOUR  
FARBEN  
PEINDRE

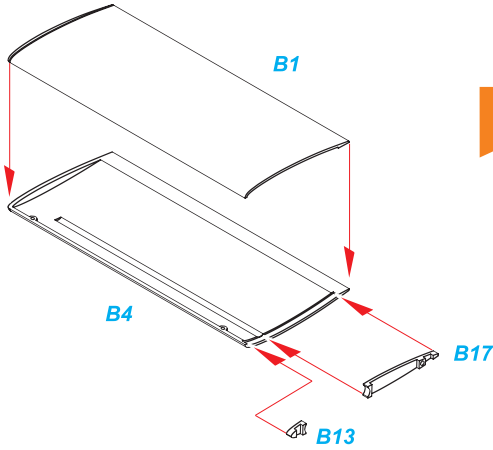
② SH32071 Fieseler Fi 103 / V-1

**1****2****3****4****5****6**

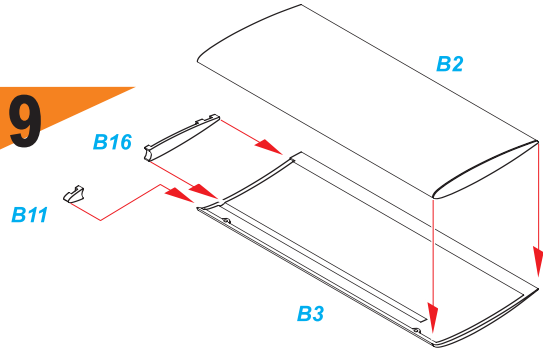
**7**



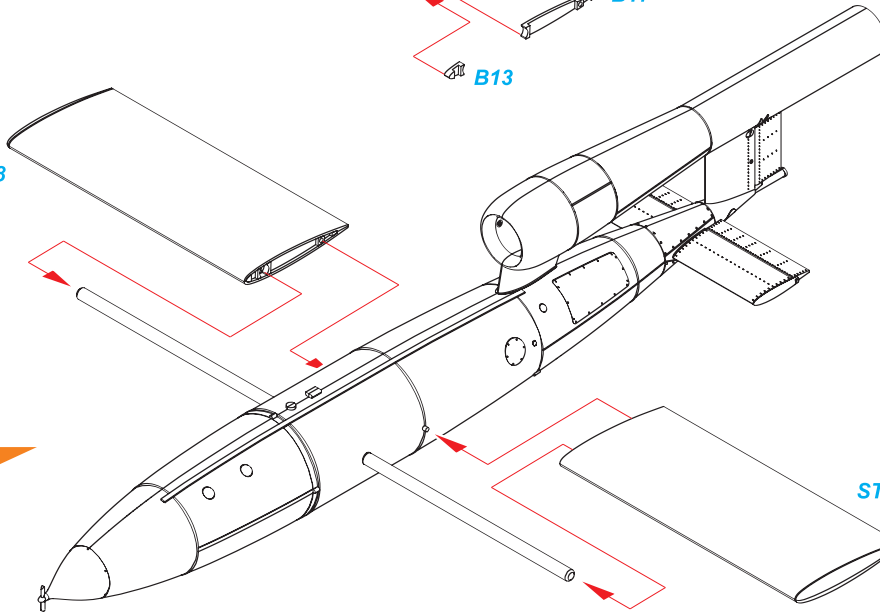
**8**



**9**



STEP8

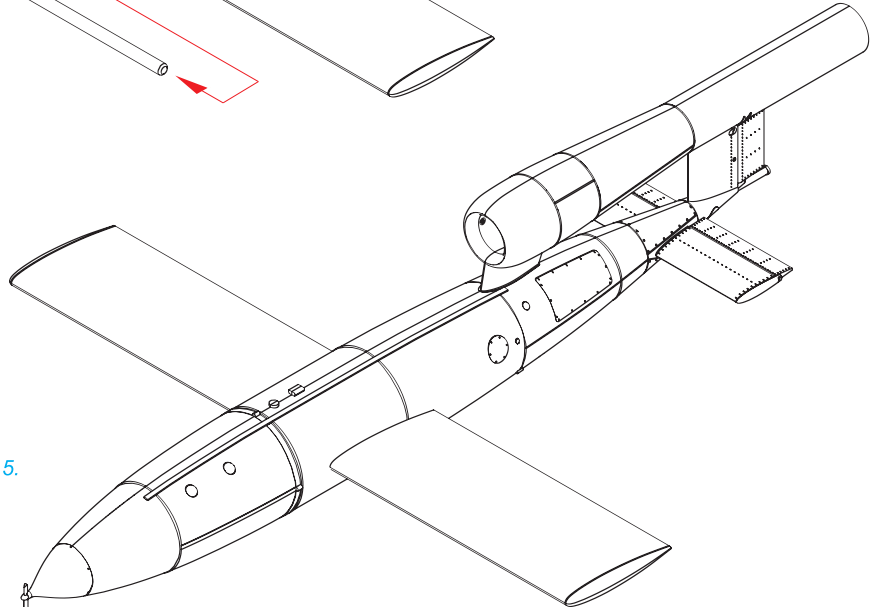


**10**



*note:  
Steps 1 to 10 give you the Fi 103 as ready to be launched.*

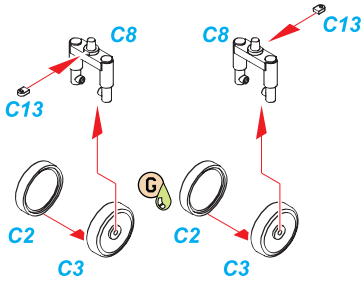
*To build the missile on its transport trolley, follow steps 11 to 16 on page 5.*





# 11

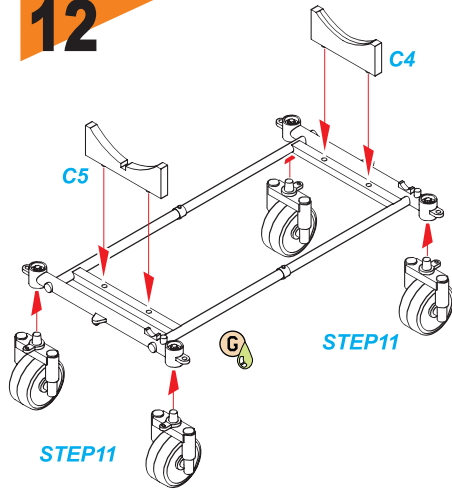
make 4 sets



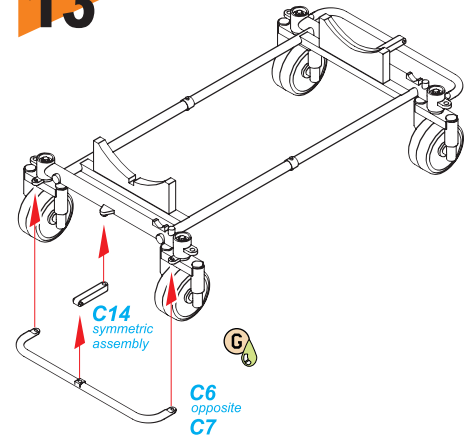
*note:*  
Check the correct position of wheel halves C2 and C3 before you glue them together. Rotate if necessary so that they are aligned properly.

The complete TW-76 trolley is thought to have been painted in German Panzergrau grey.

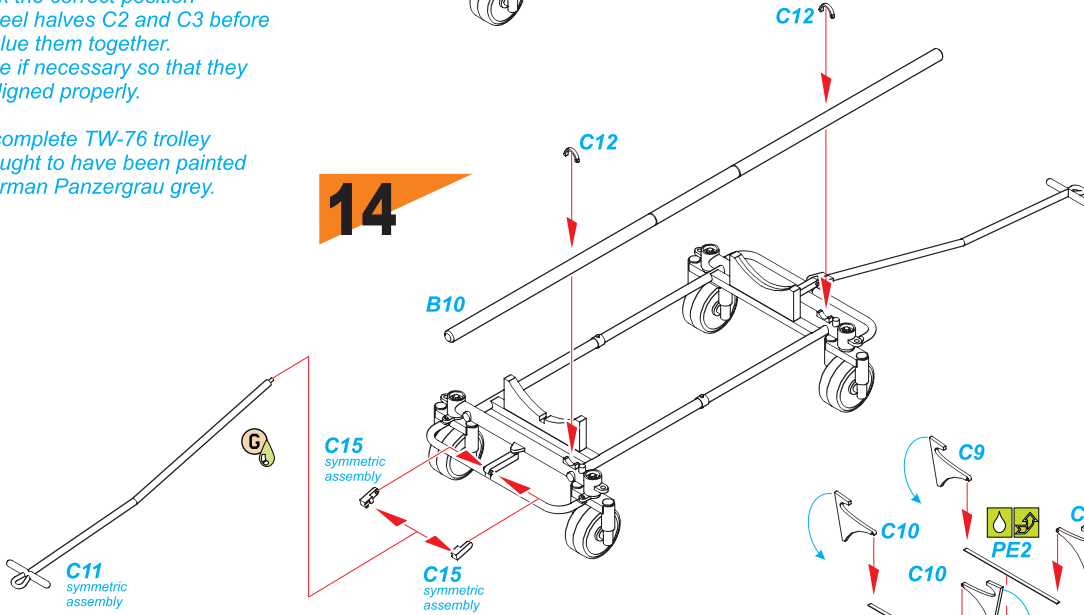
# 12



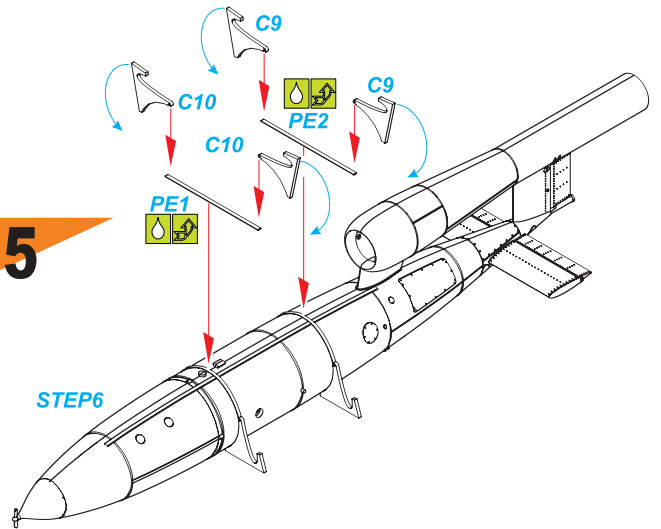
# 13



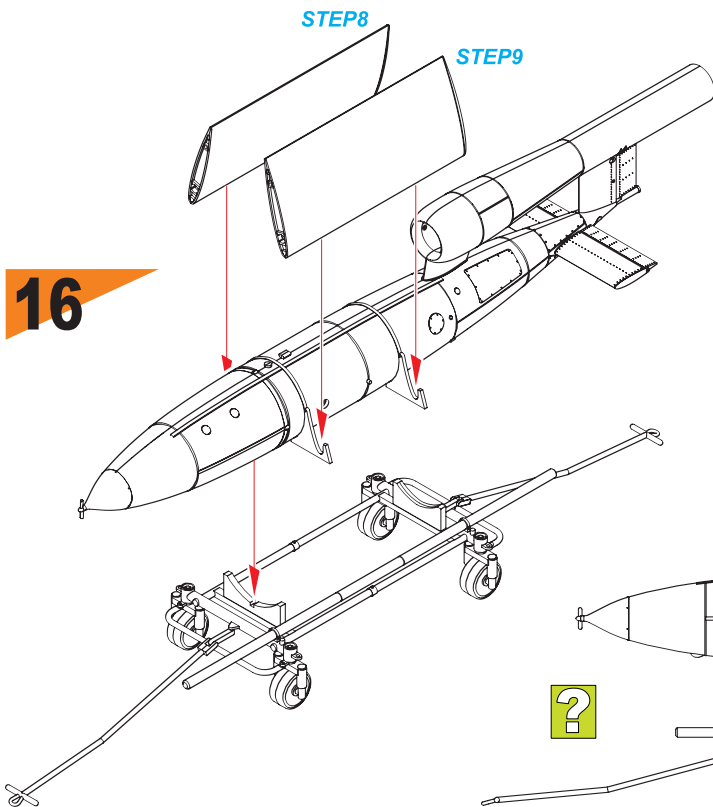
# 14



# 15



# 16



STEP8,9

STEP15

STEP14

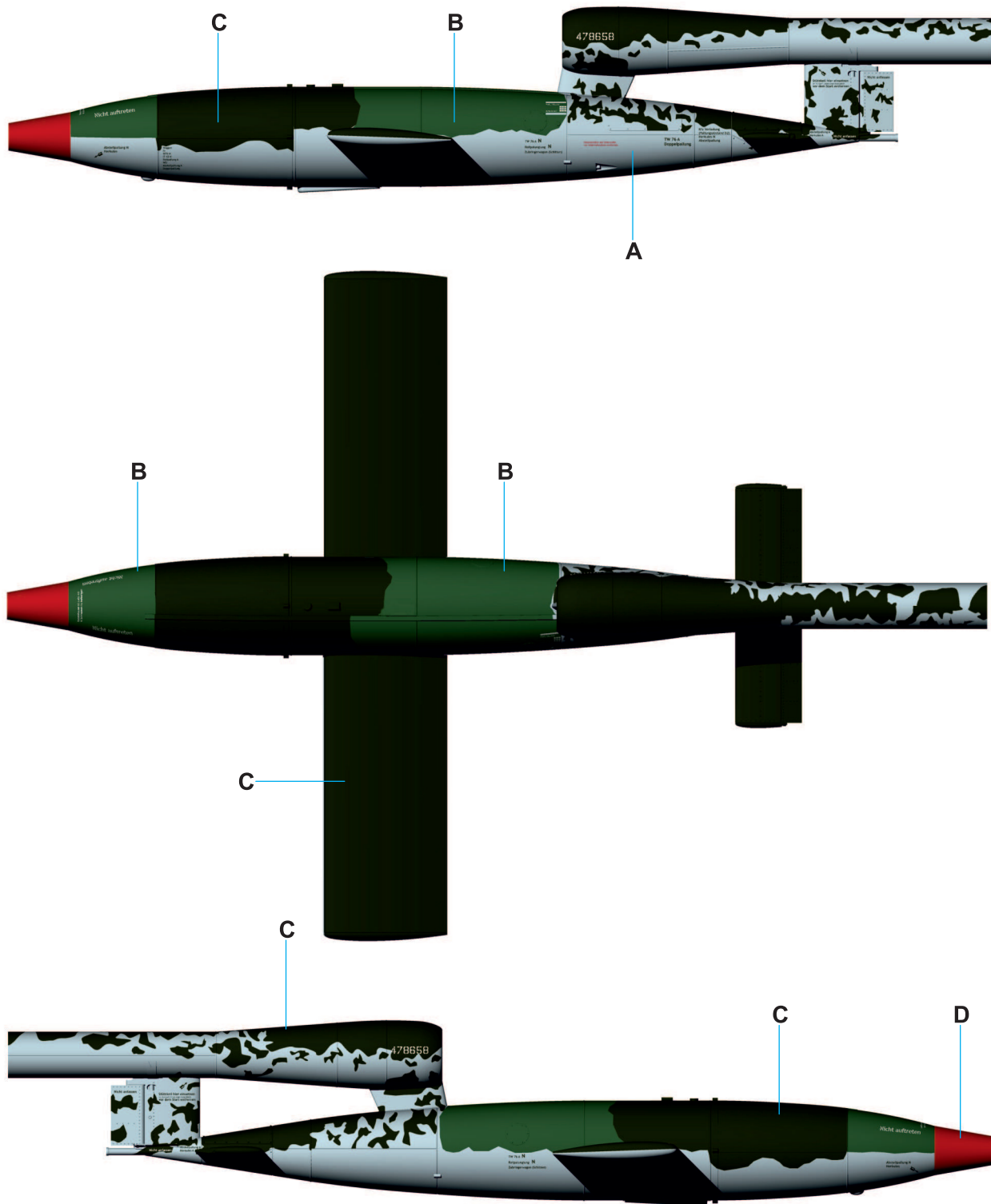


Side view - not to scale

**Fi 103A-1** ve standardní kamufláži tvořené barvami RLM 76 zespoda a RLM 82 a 83 shora. Jednotlivé segmenty trupu byly vyráběny a barveny samostatně. Při celkové montáži na sebe často barevné pole nenavazovaly.

**Fi 103A-1** in a standard scheme of RLM76 below and RLM82 and 83 on the upper surfaces. The fuselage sections were manufactured and painted at different plants and following the final assembly, the demarcation on the components often did not match each other.

**CAM. A**



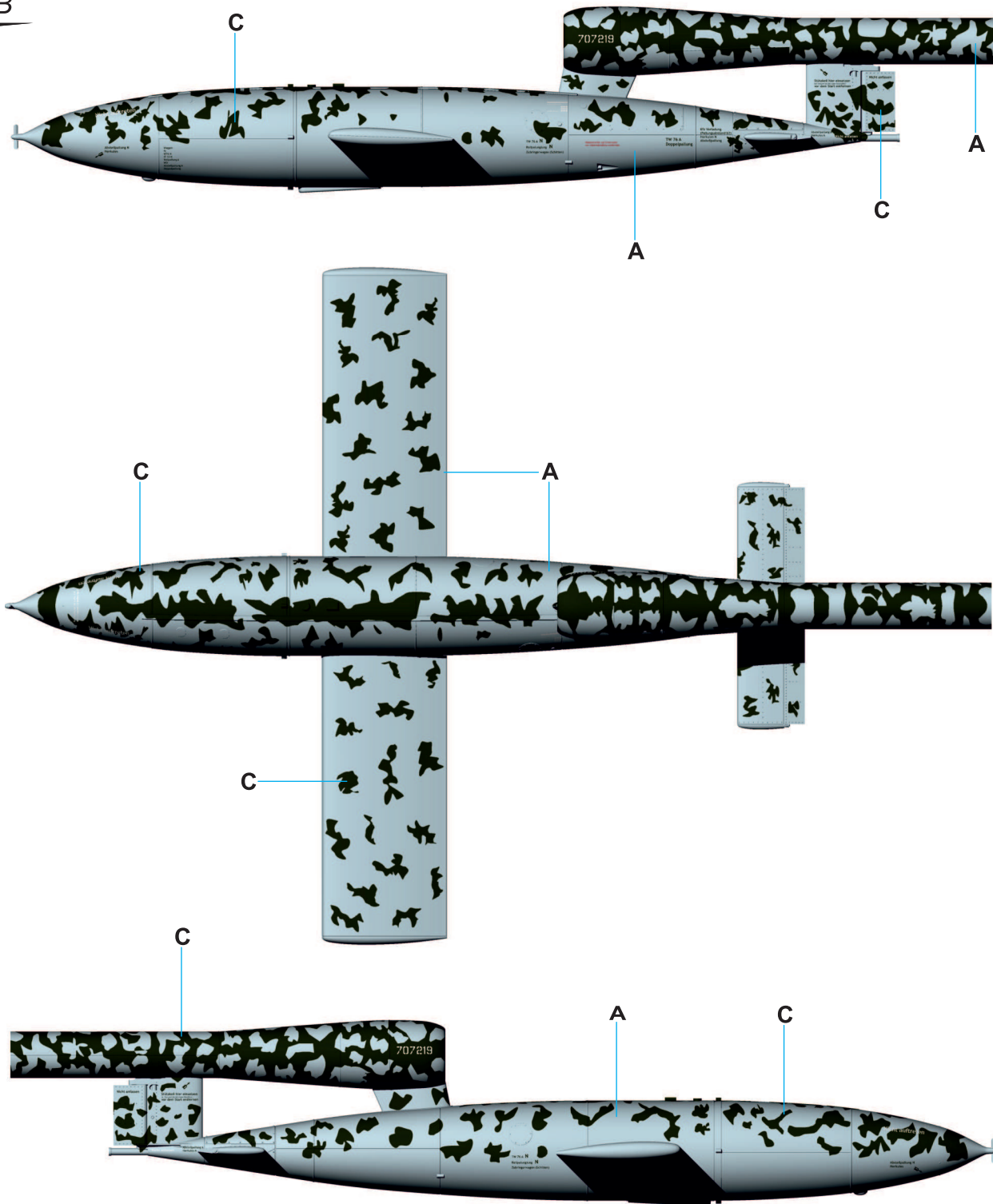
- A RLM 76 Světle modrá  
RLM 76 Light Blue  
H417 / C117
- B RLM82 Olivová zelená  
RLM 82 Olive Green  
H422 / C122
- C RLM83 Tmavá zelená  
RLM 83 Dark Green  
H423 / C123
- D RLM23 Červená  
RLM23 Red  
H414 / C114



**Fi 103A-1 (Wr.N. 707219)**, letiště Luftwaffe, Francie 1944. Střela 707219 nese kamufláž používanou u střel odpalovaných z letadel. Zajímavé je, že na trup a křídlo byly stříkány skvrny RLM 82 na světlou RLM 76, ale u krytu pulzačního motoru tomu bylo obráceně, na tmavý povrch byly stříkány světlé skvrny.

**Fi 103A-1 (W.Nr. 707219)** at a Luftwaffe airfield in France, 1944. This missile wore the colour scheme usually used on V1 launched in the air from flying aeroplanes. It might be of interest that on the fuselage and wings, patches of RLM82 were sprayed onto light RLM76 colour while on the engine cover it was the other way round, i.e. dark colour first and then mottles of the lighter colour.

**CAM. B**



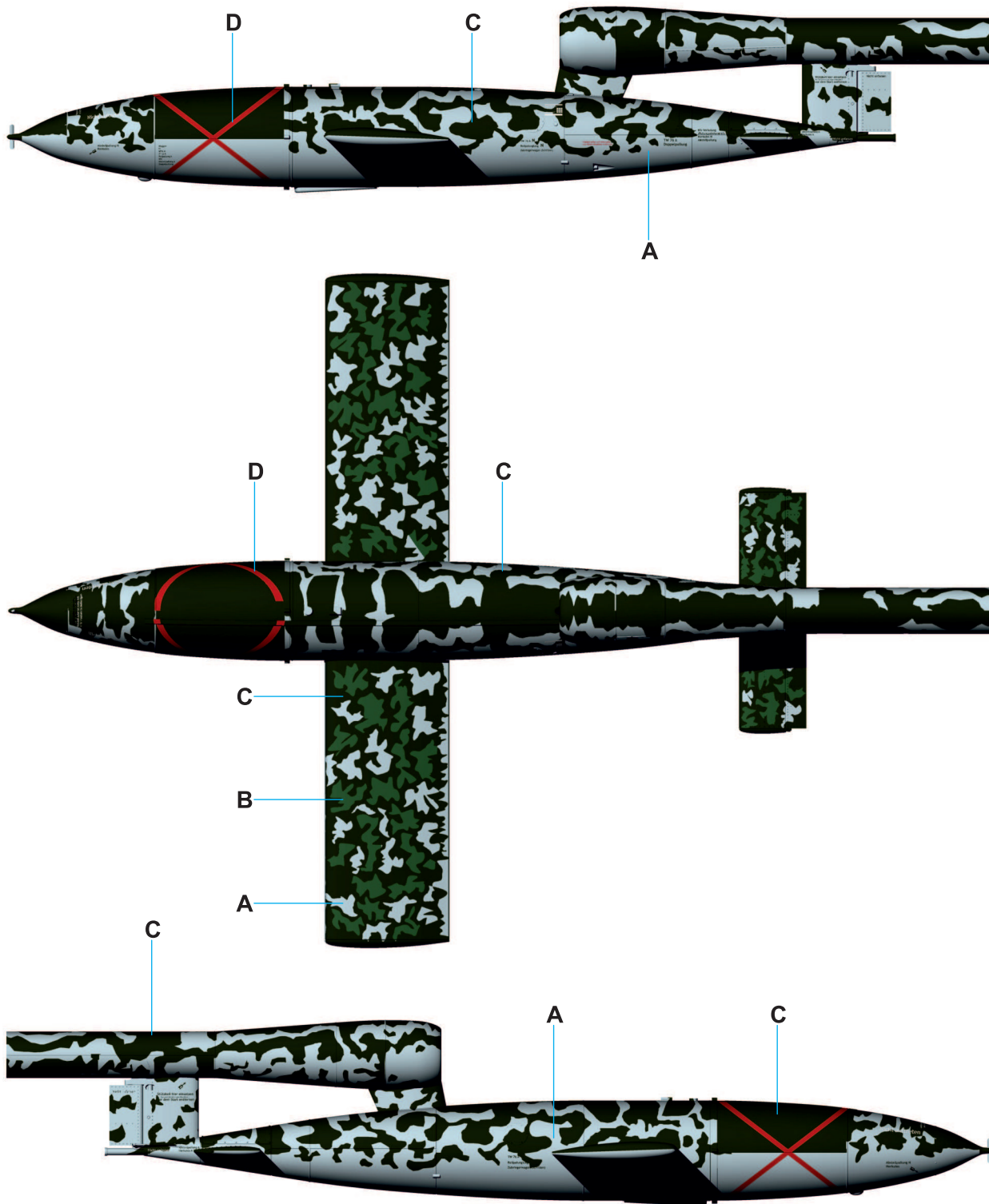
**special**  
**HOBBY**  
GUNZE  
SANGYO

- A RLM 76 Světle modrá  
RLM 76 Light Blue  
H417 / C117
- B RLM82 Olivová zelená  
RLM 82 Olive Green  
H422 / C122
- C RLM83 Tmavá zelená  
RLM 83 Dark Green  
H423 / C123
- D RLM23 Červená  
RLM23 Red  
H414 / C114

**Fi 103B-2**, Flakregiment 155/W, Francie, léto 1944.  
Verze B-2 byla vzhledově shodná s verzí A-1, ale nesla v přídí účinnější výbušninu Trialen 105 nebo 106. Pro snadné rozlišení této verze byly používány červené proužky na trupu.

**Fi 103B-2**, Flakregiment 155/W, France, summer 1944. The B-2 variety was visually identical with the A-1, just that it was fitted with more powerful explosive in the nose, this being Trialen 105 or 106. Red coloured bands were applied on the fuselage so that these versions could be easily and quickly distinguished.

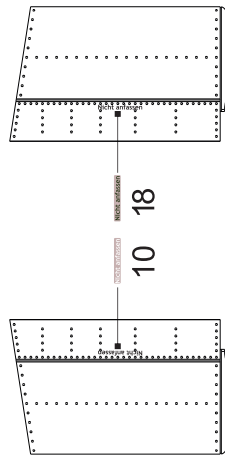
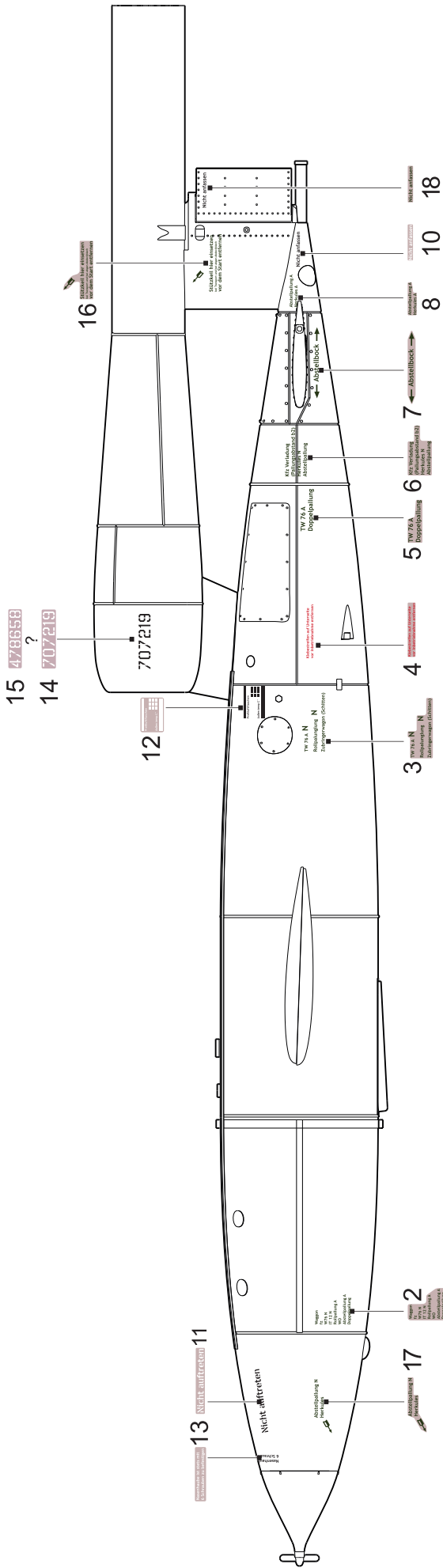
CAM. C



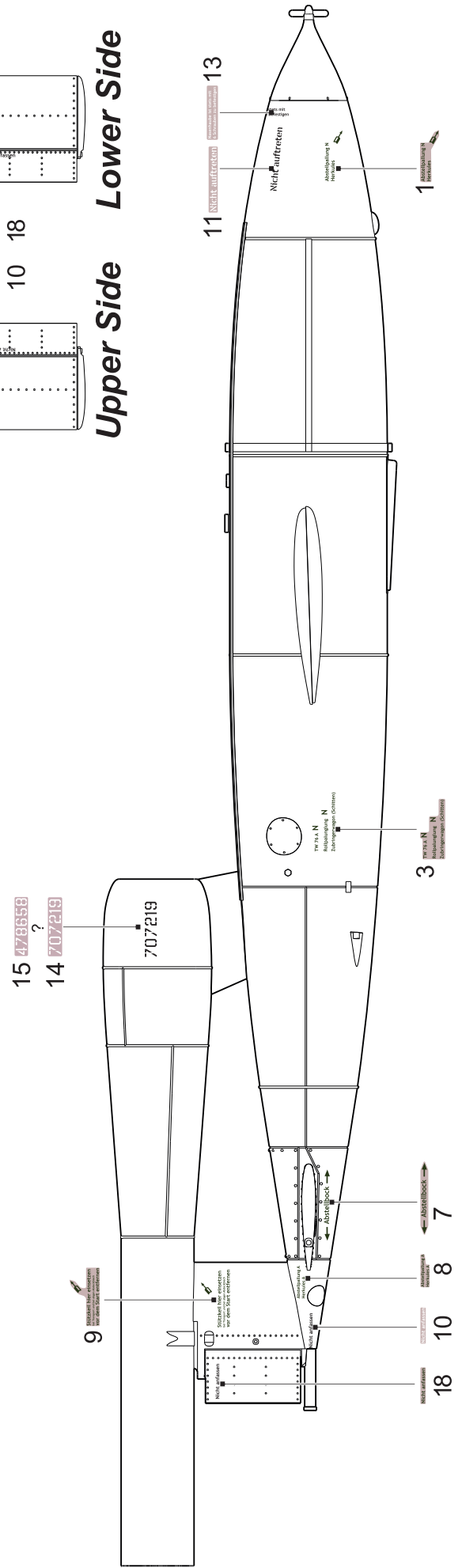
special  
HOBBY  
GUNZE  
SANGYO

- |          |   |          |  |          |   |          |   |
|----------|---|----------|--|----------|---|----------|---|
| <b>A</b> | RLM 76 Světle modrá<br>RLM 76 Light Blue<br>H417 / C117 | <b>B</b> | RLM 82 Olivová zelená<br>RLM 82 Olive Green<br>H422 / C122 | <b>C</b> | RLM 83 Tmavá zelená<br>RLM 83 Dark Green<br>H423 / C123 | <b>D</b> | RLM 23 Červená<br>RLM 23 Red<br>H414 / C114 |
|----------|---|----------|--|----------|---|----------|---|





### Upper Side Lower Side



# TEMPEST MK.VI



SH32055 1/32



**Q32239**  
Tempest Mk.V/VI  
Exhausts set



**Q32244**  
Tempest/  
Typhoon  
Tail wheel  
with  
strengthened  
leg



**Q32238**  
Tempest Mk. II /  
V Series 2 / Mk.VI  
Cannon barrels with wing leading edge



**Q32240**  
Tempest  
Mk. II/V/VI  
Control column



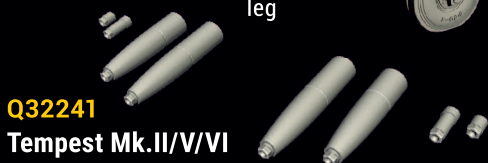
**Q32247**  
Gyro gunsight Mk.II  
for late Tempest  
and other fighters



**Q32245**  
Tempest/Typhoon  
Pilot's seat with harness



**Q32246**  
Tempest/Typhoon  
Pilot's seat



**Q32241**  
Tempest Mk.II/V/VI  
Early and late cannon barrels



CZECH  
MASTER'S KITS

## RESIN SETS FOR YOUR TEMPEST



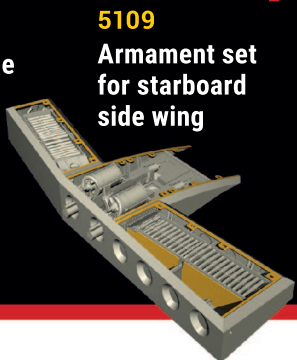
**Q32242**  
Main wheels late type  
For Tempest Mk.II/V/VI



**Q32275**  
Square tread  
pattern mainwheels  
For Tempest Mk.II/V/VI



**5108**  
Main undercarriage  
strengthened legs



**5109**  
Armament set  
for starboard  
side wing

IN 1/32 SCALE

**F32316**  
British  
Tempest pilot,  
sitting



**F32317**  
British Tempest pilot,  
climbing out  
of cockpit



**F32340** British  
WWII Tempest  
mechanic



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OF SANDING PAPERS ON  
ONE SANDING STICK.

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