

# I.A.R. 80/81

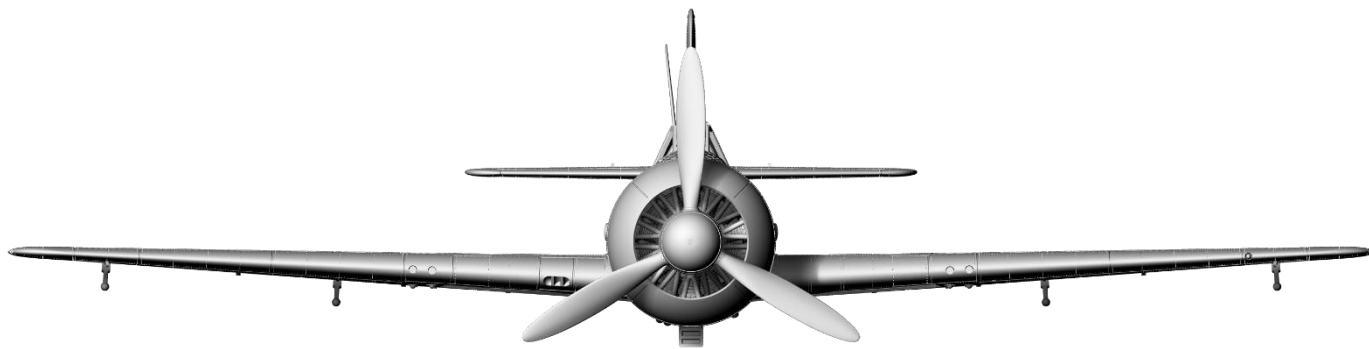
## *Vânător*

### **Complete 80/81 SERIES**



**BEST ROMANIAN FIGHTER OF WORLD WAR II**





## IAR. 80/81 - the best Romanian fighter of World War II

The IAR. 80/81 was the only Romanian fighter of domestic design to take part in World War II, facing often superior opponents and still winning. The turmoil of war meant that the aircraft managed to fight all the major players in the local battle arena: the USAAF, the Soviet VVS, the German Luftwaffe and the aviation of Hungary.

In the service of the Aeronautica Regala Romana, the third largest air force on the Eastern Front, the aircraft proved to be a very capable and dangerous weapon and became one of the most effective fighters of the Kingdom of Romania, remaining in service even after the end of hostilities until the mid-1950s.

In more than three years of combat, pilots flying the IAR. 80/81 scored 539 confirmed and 90 unconfirmed victories over aircraft in the air and destroyed another 168 machines on the ground.

The success of this design was made possible by the participation of Polish technical expertise and the perfection of Romanian designers. Romanian designers used part of a licensed Polish PZL P.24E fighter to build the machine. The rear part of the fuselage including the tail section, starting just behind the cockpit, was adopted for the new design. The structure and the tail tailplane were seriously modified - both inside and out. The plating was changed to smooth sheet metal, the internal structure was strengthened. The rest of the aircraft was designed from scratch.

Although only 450 copies of the IAR. 80/81 were produced, the aircraft was continuously improved, resulting in a number of significantly different versions - fuselage length, wingspan and armament. The fuselage length was increased starting with aircraft No. 201, and the wings were lengthened starting with aircraft No. 212. In addition, a pure fighter plane (IAR. 80) and a bomber fighter (IAR. 81) that could enter fighter tasks after dropping bombs were built based on the same design.

This study focuses on single-seat aircraft produced in series and discusses the wealth of differences between series and versions of the machine. The IBG Models kit takes into account all the differences discussed and allows the construction of any variant.

## 1. IAR. 80 (fighter) - Serial block 1-50

- The first series-produced version
- Powered by license-built Gnome & Rhone 14K radial engine, (IAR. 14K) with VDM 9-11131 variable pitch propeller
- Short nose and short wings
- No tailplane struts
- Armed with 4x 7,92 FN Browning machine guns
- Straight-type fairing between undercarriage (Fig.1A)
- Early style canopy sliding hood (Fig.1B)
- Ring&bead type of gunsight for first 21 aircraft, later replaced with Goerz gunsight
- No intake duct for first 21 aircraft, duct later retrofitted to all aircrafts

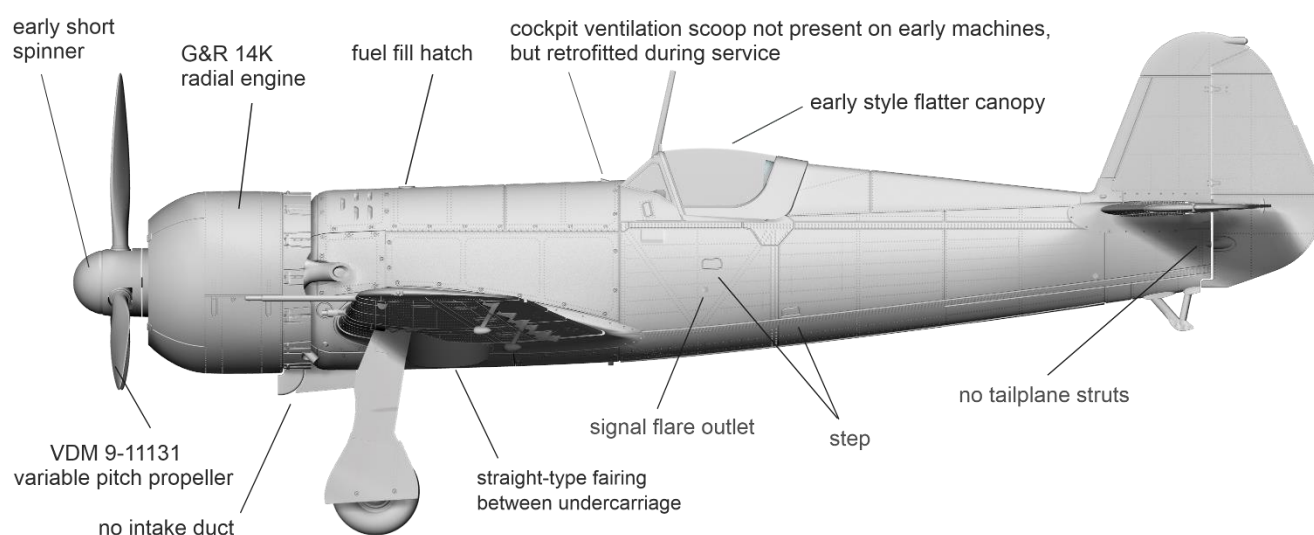


Fig. 1

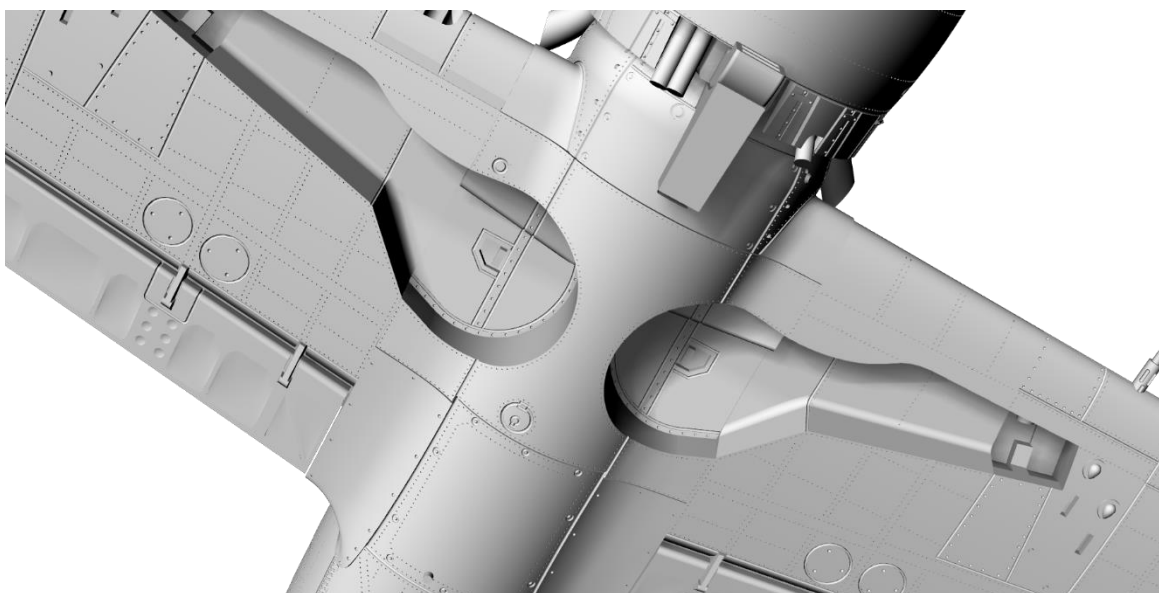


Fig. 1A

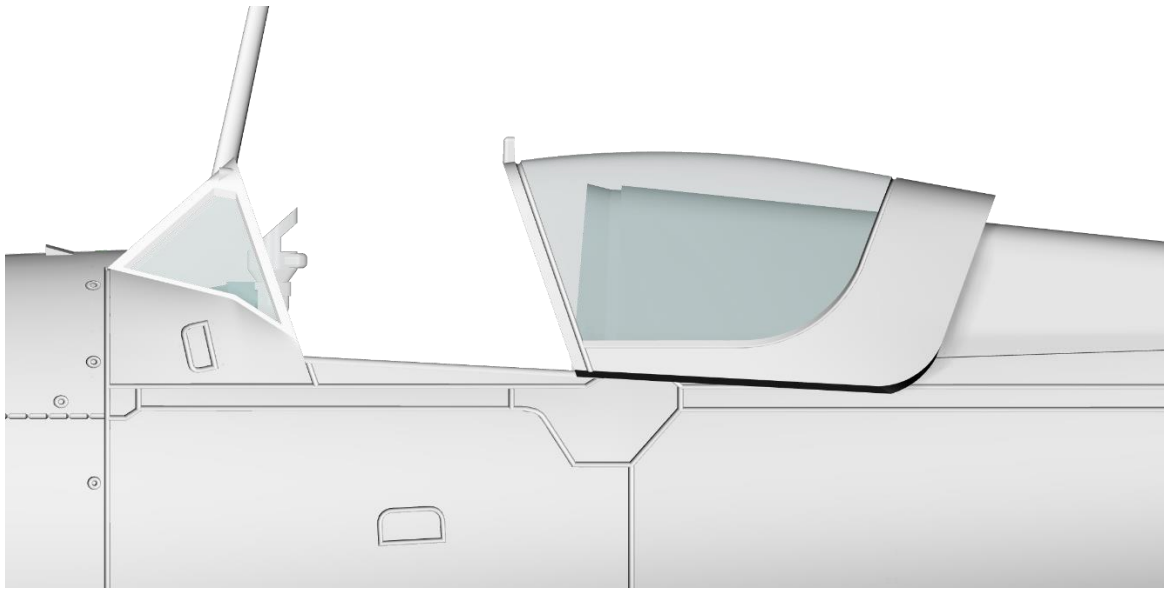


Fig. 1B

## 2. IAR. 80A (fighter) - Serial block 51-90; 106-150; 176-180

- Introduced the new, lightened engine version IAR. 14K IVc32 1000A
- Short nose and short wings
- No tailplane struts
- Armed with 6x 7,92 FN Browning machine guns
- Telereflex gunsight
- Flat-type fairing between undercarriage (Fig.1A) till aircraft no. 75
- Starting from aircraft no. 76, a new removable and more bulged fairing between undercarriage introduced (Fig.2A)
- longer spinner with big hole at front introduced
- Simple intake duct under engine cowling
- New, more bulged canopy sliding hood introduced and later retrofitted to some earlier aircraft (Fig.2B)

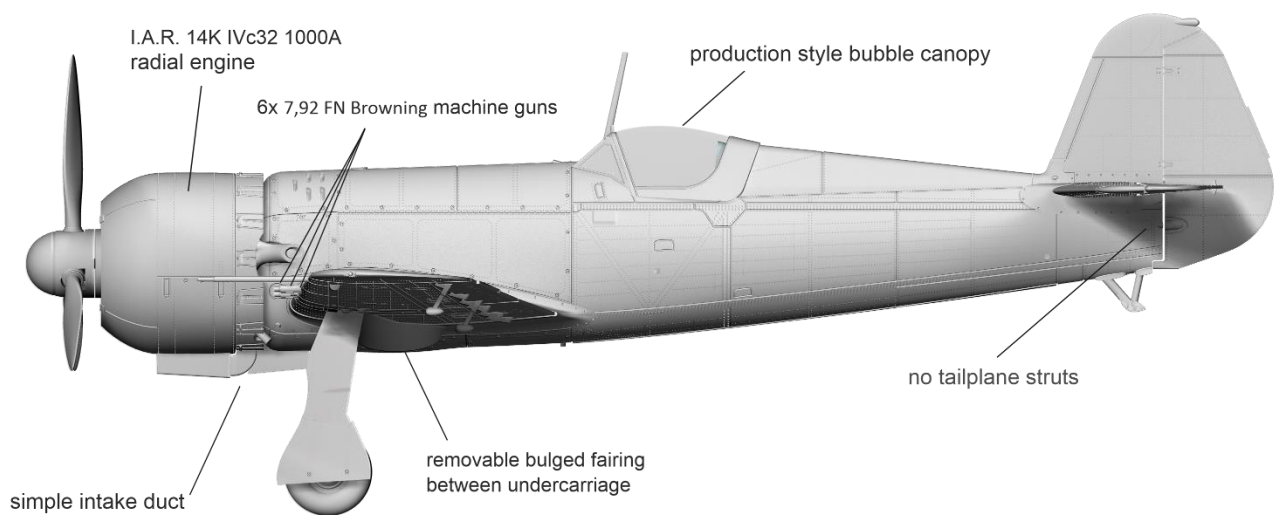


Fig. 2



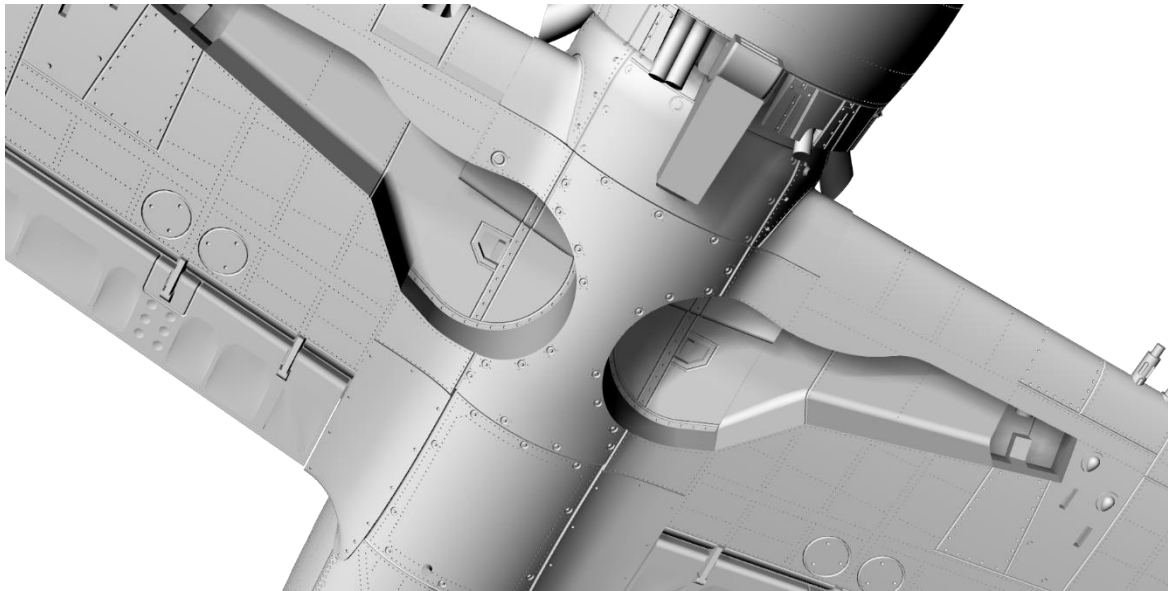


Fig. 2A

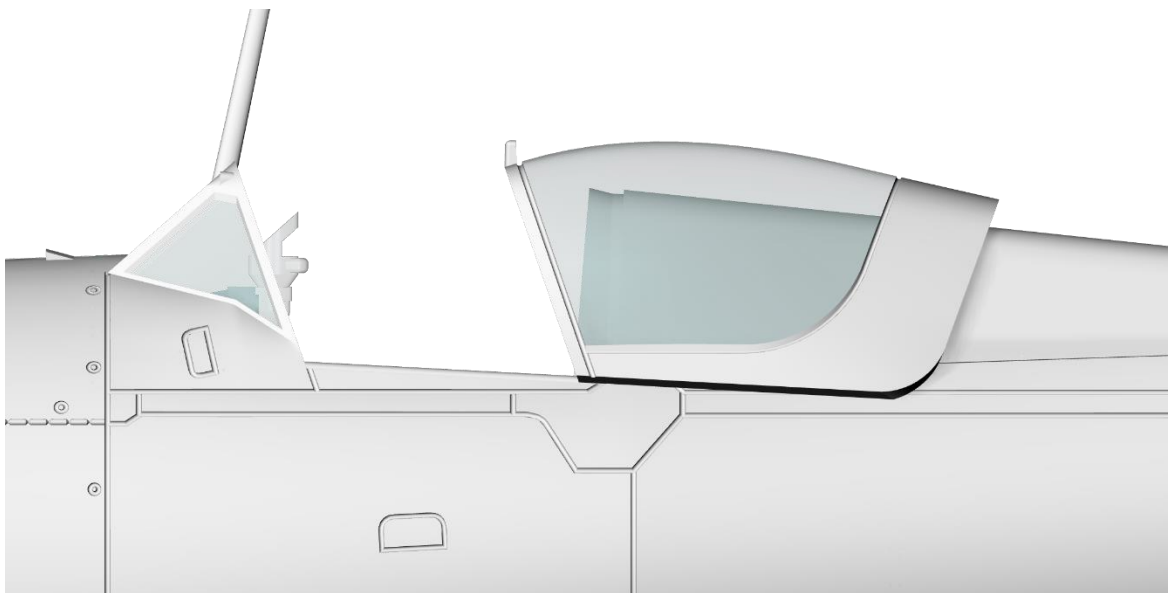
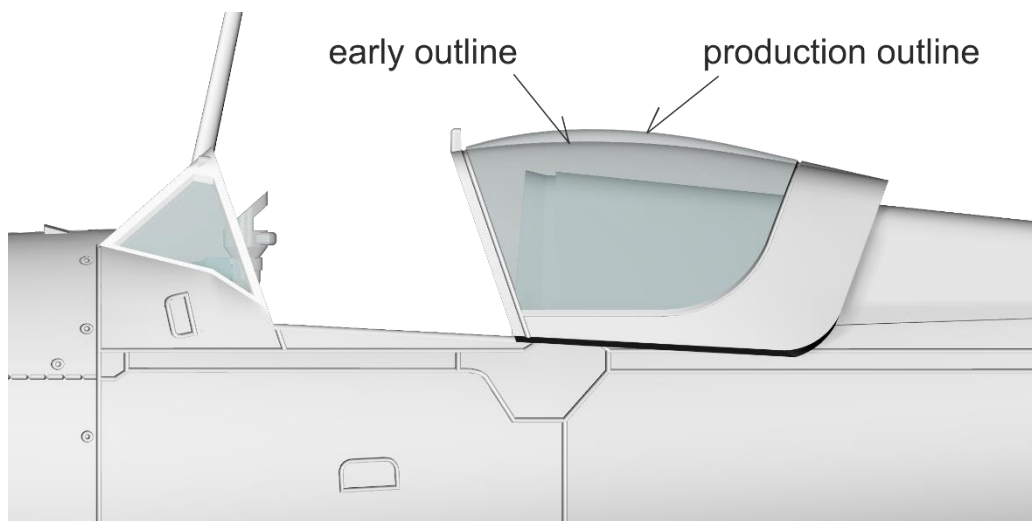


Fig. 2B

Canopy variants comparison:



### 3. IAR. 81 BoPi (dive bomber) - Serial block 91-105; 151-175

- Short nose and short wings
- Added tailplane struts
- Armed with 6x 7,92 FN Browning machine guns
- Bulged fairing between undercarriage
- Simple intake duct under engine cowling
- Central bomb rack and brace for 250kg bomb (Fig.3A)
- Wing racks for 50kg bombs

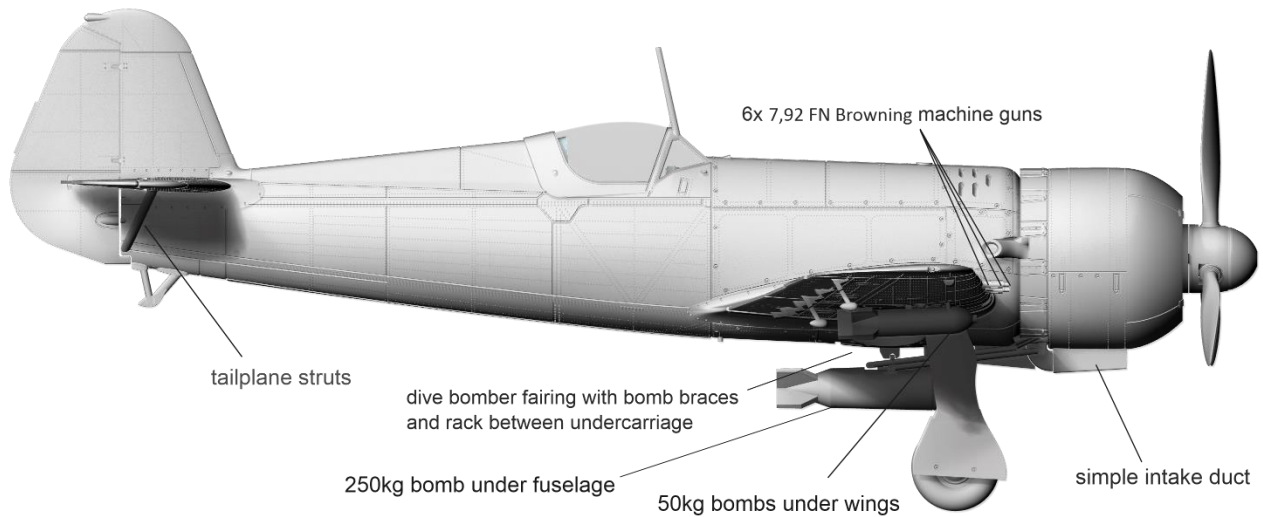


Fig. 3

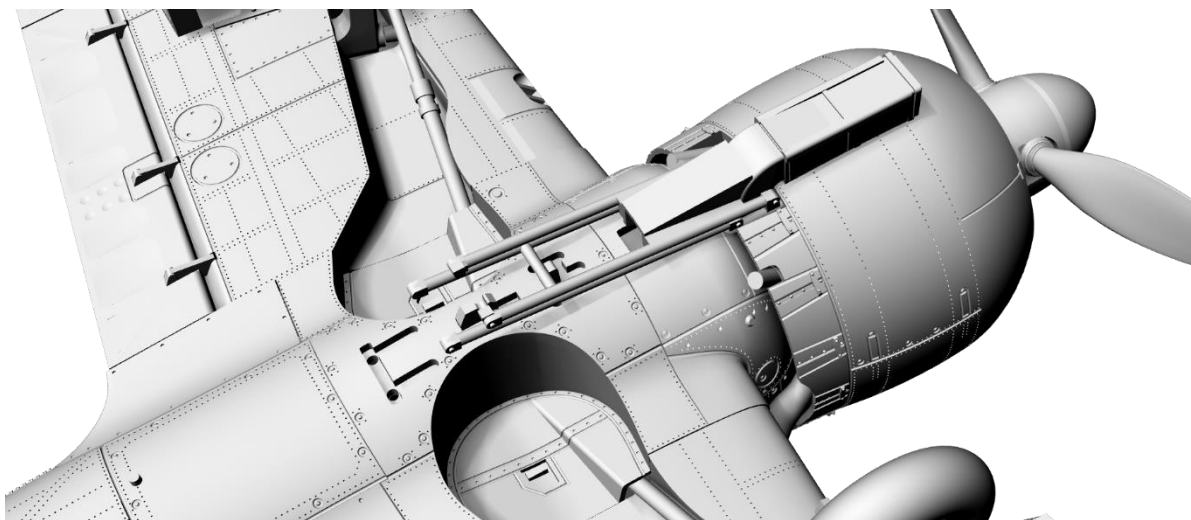


Fig. 3A

#### 4. IAR. 80B (fighter) - Serial block 181-200

- Short nose and short wings
- No tailplane struts
- Armed with 4x 7,92mm + 2x 13,2mm FN Browning machine guns
- Telereflex gunsight
- Bulged fairing between undercarriage
- Simple intake duct under engine cowling
- New, "spade grip" control stick introduced from this batch

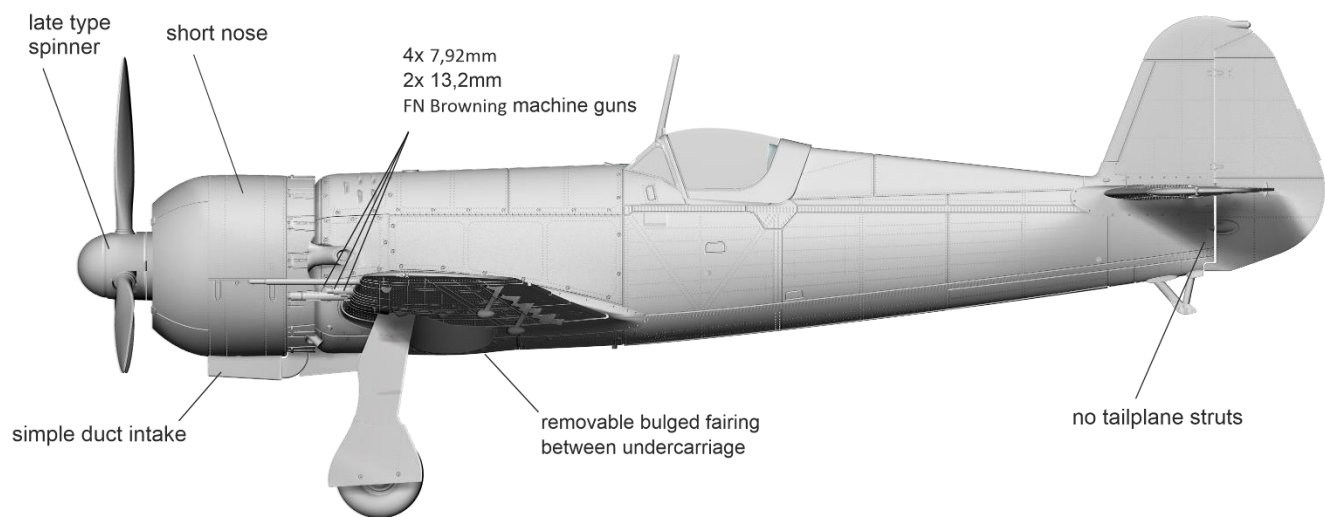


Fig. 4

#### 5. IAR. 80B (fighter, improved) - Serial block 201-230; 291-300

- Starting this version a long nose introduced – extended by 70mm in front of firewall
- First ten aircrafts serial no. 201-211 had still short wings
- Starting from serial no. 212, a long wings introduced with 11m wingspan
- Structure and skin airframe strengthened
- Landing gear stroke extended
- Drop tanks installation introduced from this version onwards
- No tailplane struts in first batch till aircraft no. 230
- Tailplane struts in second batch from aircraft no. 291
- Starting from aircraft no. 250, a late type headrest introduced, and later retrofitted on some earlier machines
- Armed with 4x 7,92mm + 2x 13,2mm FN Browning machine guns
- Starting aircraft no. 212 a 13,2mm round payload increased
- Bulged fairing between undercarriage
- Simple intake duct under engine cowling in the first batch, dust filter used in second batch from the aircraft no. 291
- Additional oil cooler in the left wing (symmetrical to the right ) in second batch from aircraft no. 291

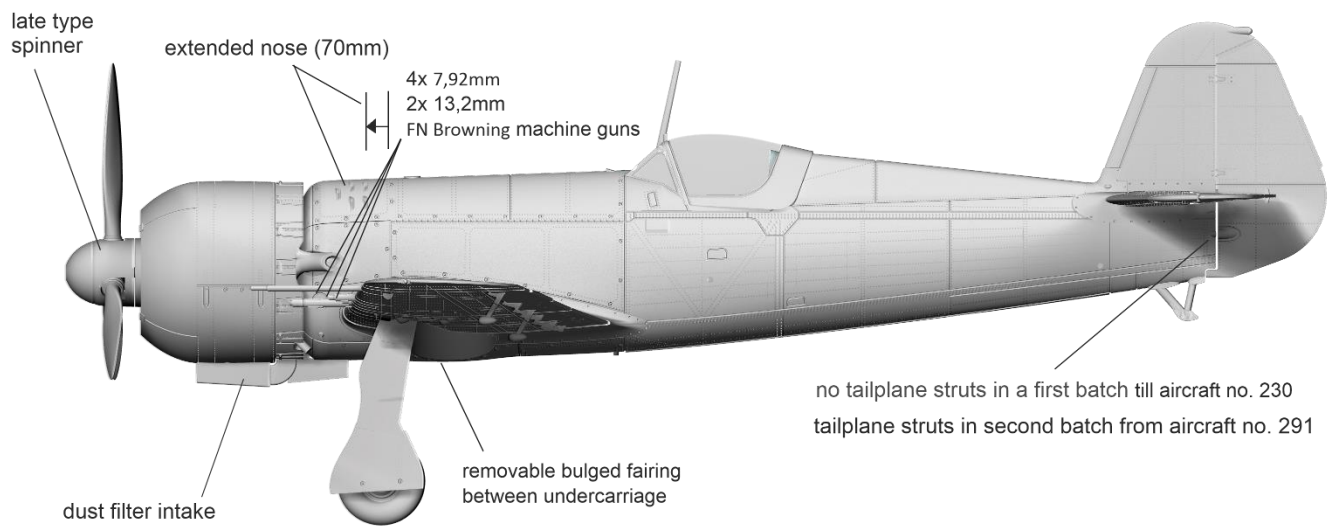


Fig. 5

## 6. IAR. 81 (fighter-bomber, improved) - Serial block 231-240

- Long nose and long wings
- Structure and skin airframe strengthened
- Tailplane struts
- Armed with 6x 7,92mm FN Browning machine guns
- Bulged fairing between undercarriage
- Drop tanks installation
- Bomb racks under fuselage and wings
- Simple intake duct under engine cowling

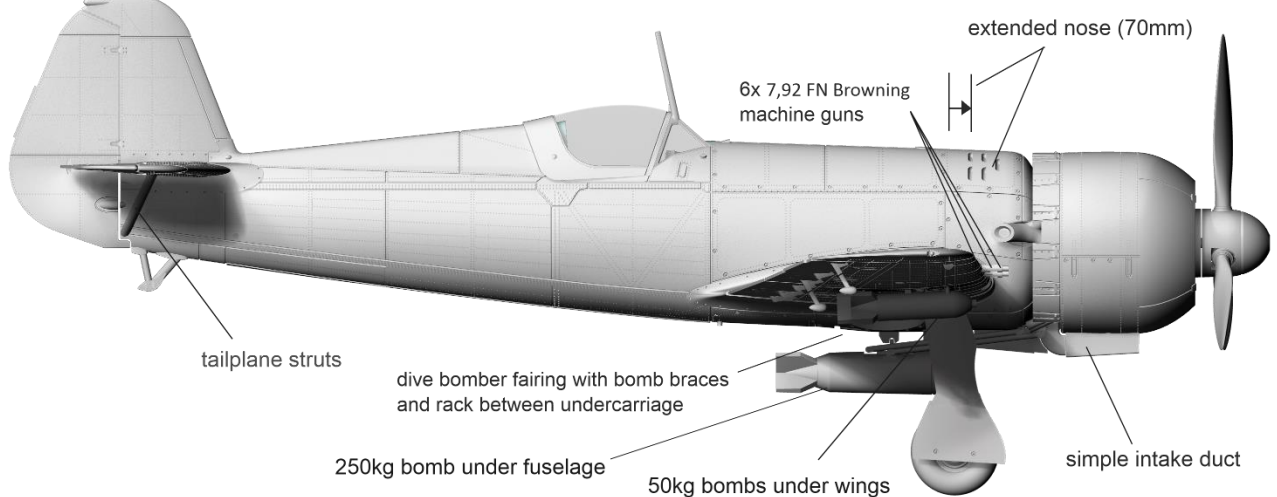


Fig. 6



## 7. IAR. 80C (heavy fighter, Ikaria cannon) - Serial block 241-250; 251-290

- Long nose and long wings
- Tailplane struts
- Drop tanks installation
- Armed with 4x 7,92mm FN Browning machine guns + 2x 20mm MG-FF Ikaria Werke (Oerlikon) cannons
- Bulged fairing between undercarriage
- Air filter intake under engine cowling introduced from aircraft no. 241, later retrofitted to some earlier machines
- Additional oil cooler in the left wing (symmetrical to the right) introduced from aircraft no. 251
- Self-sealing fuel tanks from aircraft no. 251

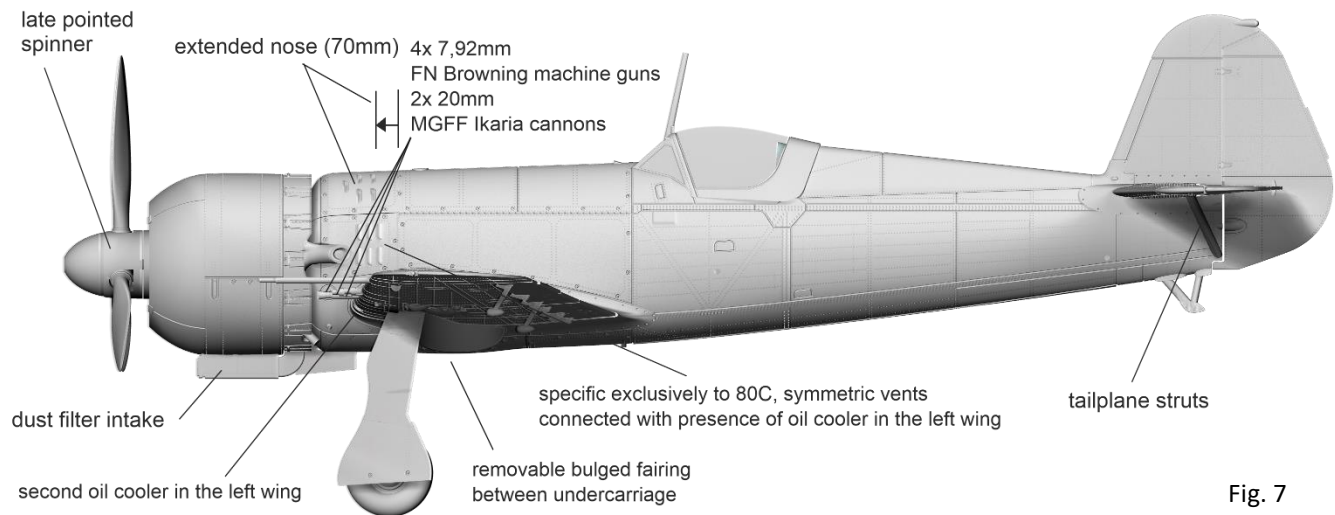


Fig. 7

Note long spinner was not specific to any version and was used on a number of different aircraft – example is shown.

## 8. IAR. 81C (heavy fighter-bomber, Mauser cannon) - Serial block 301-450

- Long nose and long wings
- Tailplane struts
- Drop tanks installation
- Armed with 2x 7,92mm FN Browning machine guns + 2x 20mm MG151/20 Mauser cannons
- Additional oil cooler in the left wing
- Self-sealing fuel tanks
- Bomb racks under fuselage and wings were installed in the factory, but were removed entering service

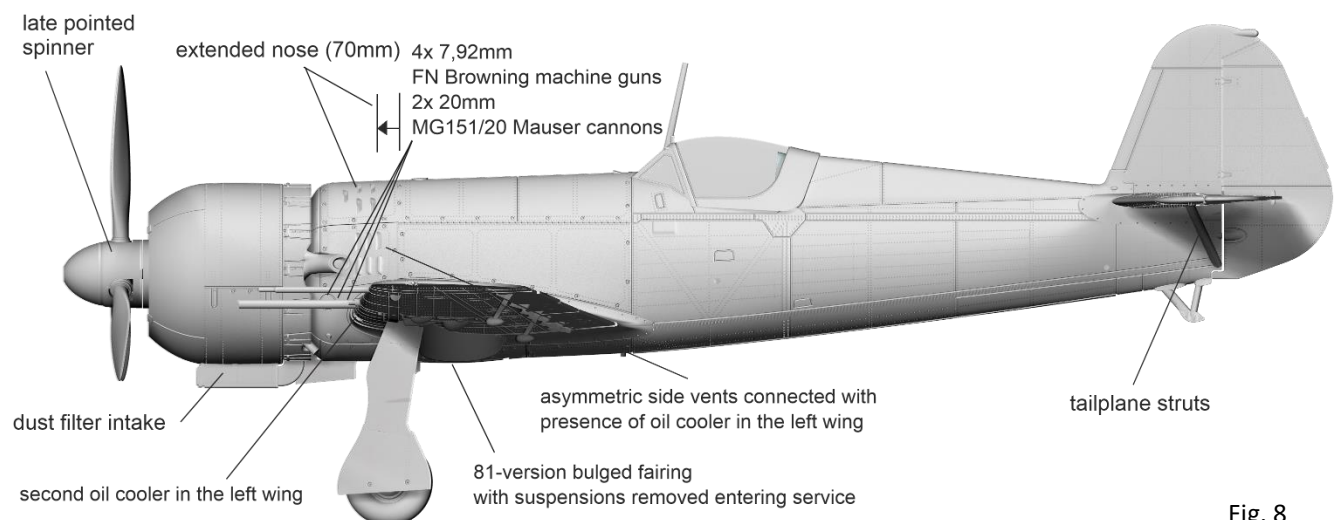


Fig. 8

## 9. IAR. 80/81 M (M for Mauser) - existing airframes modified with Mauser cannons

- Modification program introduced to upgrade 6-machine guns airframes with Mauser MG151/20 cannons
- Additional oil cooler in the left wing
- No other modifications than rearming and cooling improvement made / aircraft kept all their other features unchanged
- All external features described above possible: Long and short nose / long and short wings / existence of tailplane struts
- Confirmed serial numbers (list incomplete at the time of publication): 91, 92, 93, 94, 96, 97, 104, 108, 110, 111, 118, 120, 122, 123, 125, 128, 129, 133, 141, 151, 153, 159, 162, 163, 165, 166, 169, 170, 173, and 174

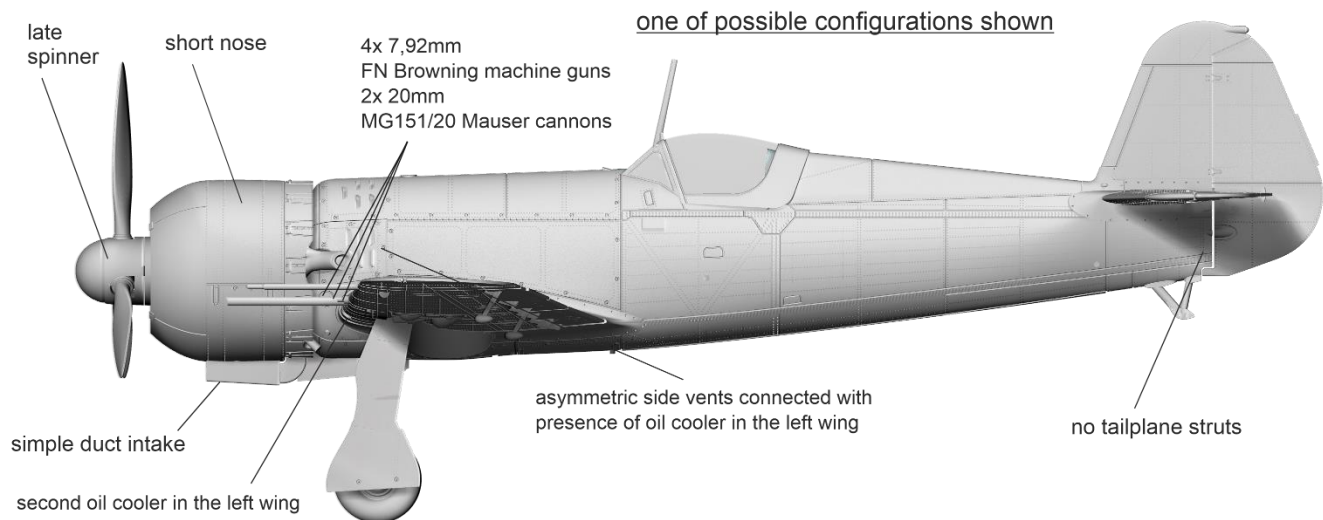
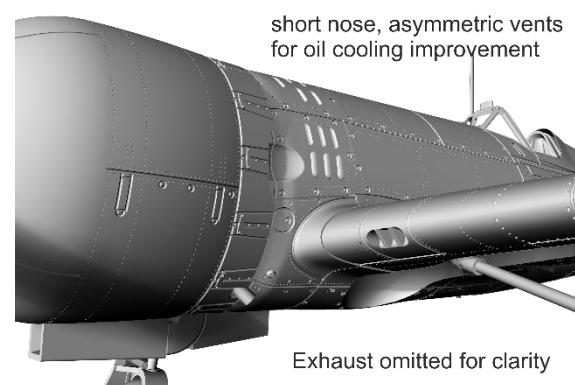
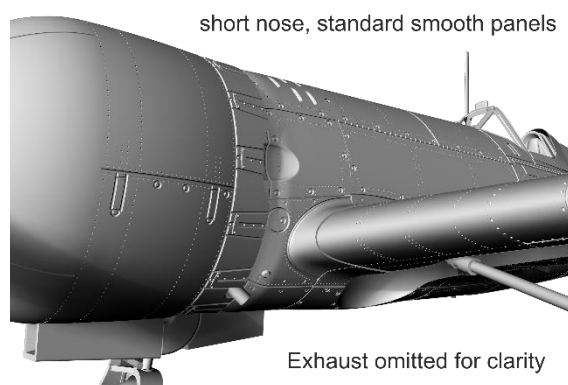
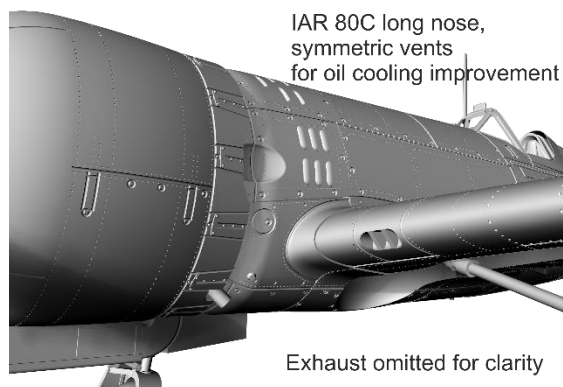
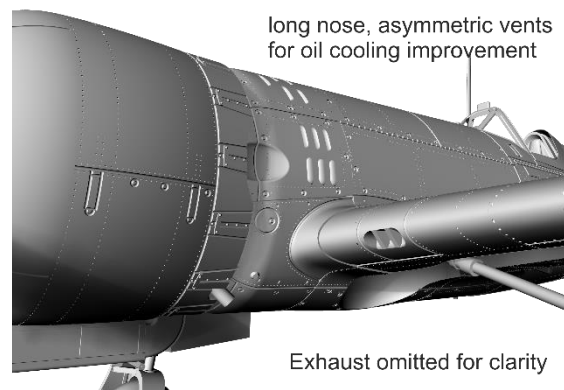
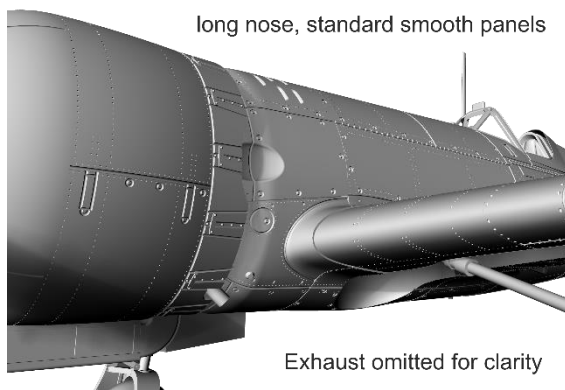


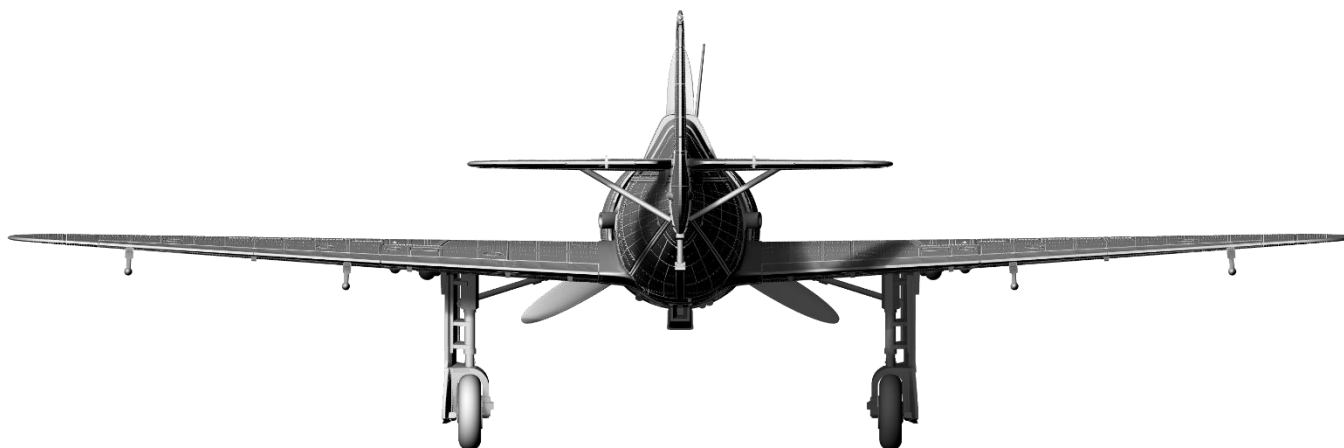
Fig. 9

## 10. Side vents evolution





## 11. Wing length comparison



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