



# AVIA BH 5

& AVIA Bk 11

pilot manual

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### **History of Avia BH 5**

The plane was constructed according to the type BH-1, the first successful plane produced by the Avia Works. It was an all-wooden two-seat training, sports and messenger plane, which was bigger than BH-1, more solid and more sophisticated, in its aerodynamics and technology. It was designed for flying basic acrobatics. The BH-5 was the first Czechoslovak plane to win an international contest and thus received the King of Belgium's Prize and the prize of the Belgian Tourist Aircraft Contest in 1923. The pilot, Zdeněk Lhota, flew to Brussels and back with a layover in Mayence at an average speed of 138 km/h. In 1923 this was a remarkable performance, not only in the sport-plane category. In 1923, the type BH-5 also won the "D" category in the President of the Republic's Contest. The Walter NZ-60, a radial five-cylinder engine, was installed in the BH-5 plane; it was the very first and a very successful engine designed by the Walter Company. Based on the results of military tests of the BH-5s, the Ministry of Defence placed an order for a series of slightly improved BH-9, BH-10 and later also BH-11 Avias, which had been successful in many national, as well as international contests and also in record and promotion flights. The BH-5 Avia plane was marked L-BOSA; thanks to this mark, all the planes of this very successful series were nicknamed "boska".

### **Model of Avia BH 5 for MFS**

Czechoslovak Historic Flight, like a organization, which endeavour propagate history of Czechoslovak aviation, has started the project Virtual Wings in 2007. Our aim is facilitate in flying with vintage planes, which we have, for wide community of virtual pilots. As a first plane is coming our present "flagship", true replica of Avia BH 5. Model was designed for Microsoft Flight Simulator, which is one of the most extended simulator in the world. All users of Flight Simulator X and 2004 have now opportunity to live through that, what lived through our ancestry in twenties and what live out pilots of Czechoslovak Historic Flight in these days. Next virtual models of vintage planes, which has Czechoslovak Historic Flight, will follow.

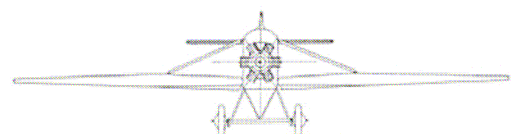
### **Installation**

Start the installation, during the installation choose the directory of Your Flight Simulator 2004/X. If you have problems with installation or working, contact us on [www.historicflight.cz](http://www.historicflight.cz) - section For You – Message Board – Virtual Wings.

### **Recommended settings of Flight Simulator**

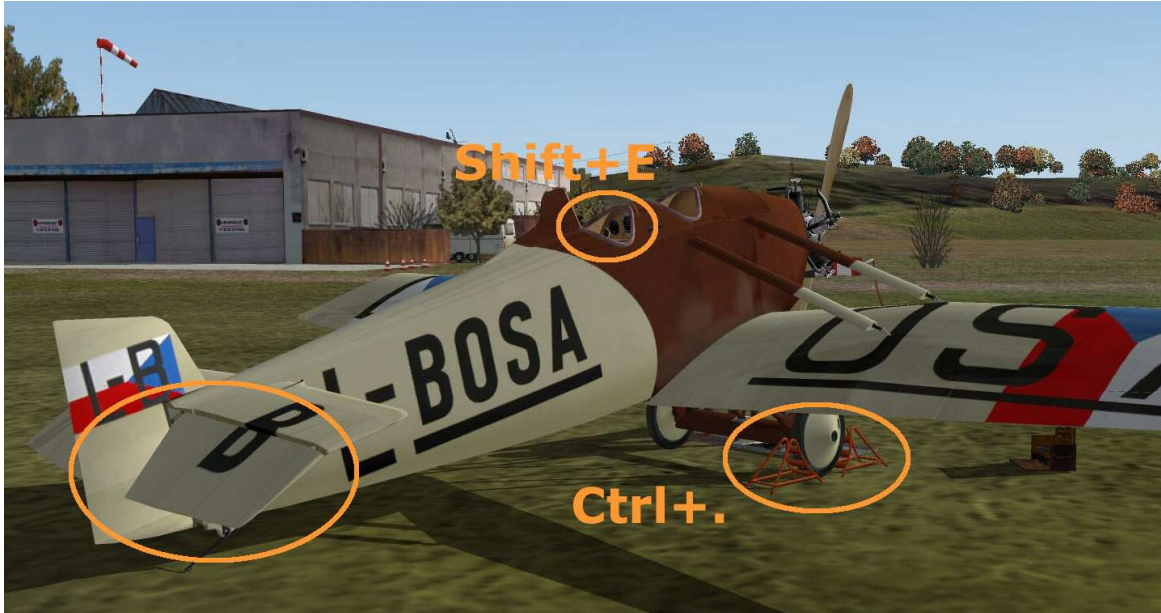
For right function set "Realism Settings" to Hard, settings of aircraft set to High and sound set to "High" and balance all riders, e.g. all to 100%.

In FSX, you must check the "Show all variations" to see the second variation of Bk.11



## Functions of model

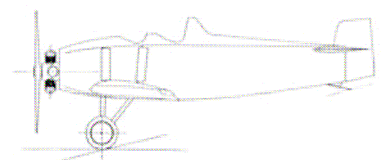
- if you switched off the engine and set parking brakes (Ctrl+.), wheel chocks will be shown
- show pilot – Shift+E
- if you switched off the engine, the elevator will fall down
- radio – Shift+2
- GPS – Shift+3
- compass – Shift+4



## Markings

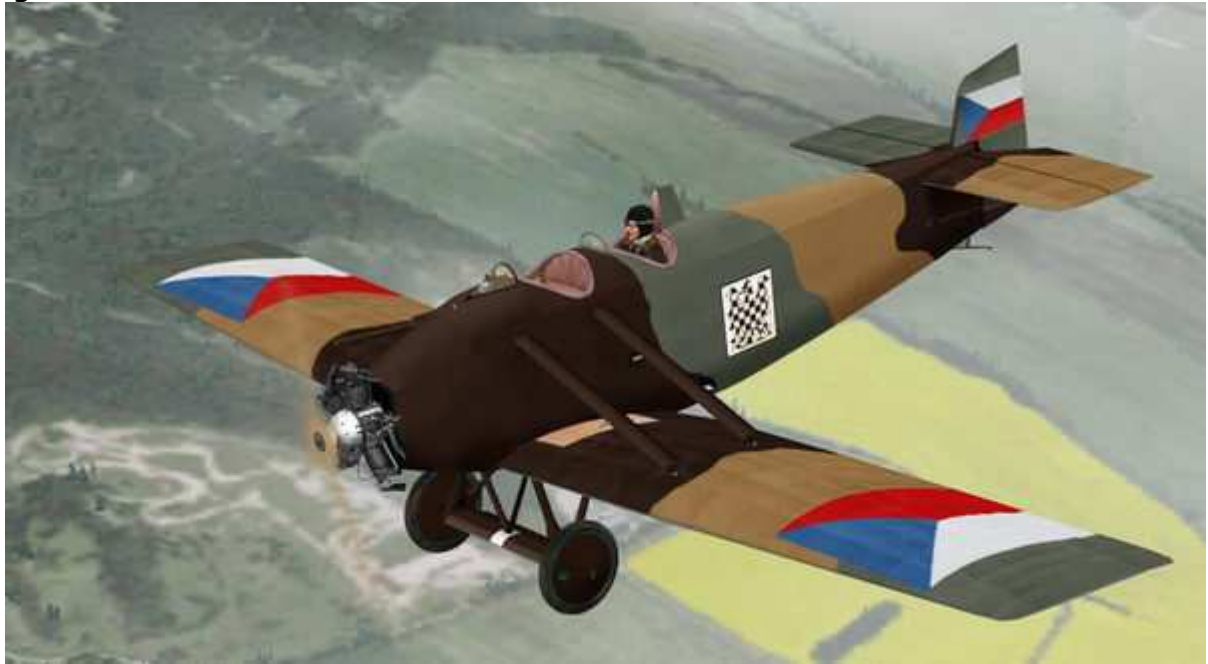
### Avia BH-5

- in this marking Avia BH-5 was flying during big military exercise in 7th September 1923. The Marking is interesting, because it has a civil registration L-BOSA and a military marking too. In this marking fly the replica too.



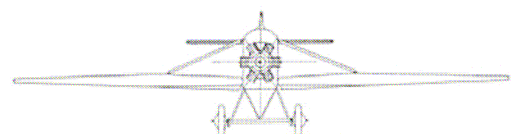
## Avia Bk.11

- first version – show Avia Bk.11, which is in museum of aviation in Kbely (Prague). It has older camouflage with 3 colours on top and blue bottom. This airplane was flying in 2nd flying regiment in Olomouc



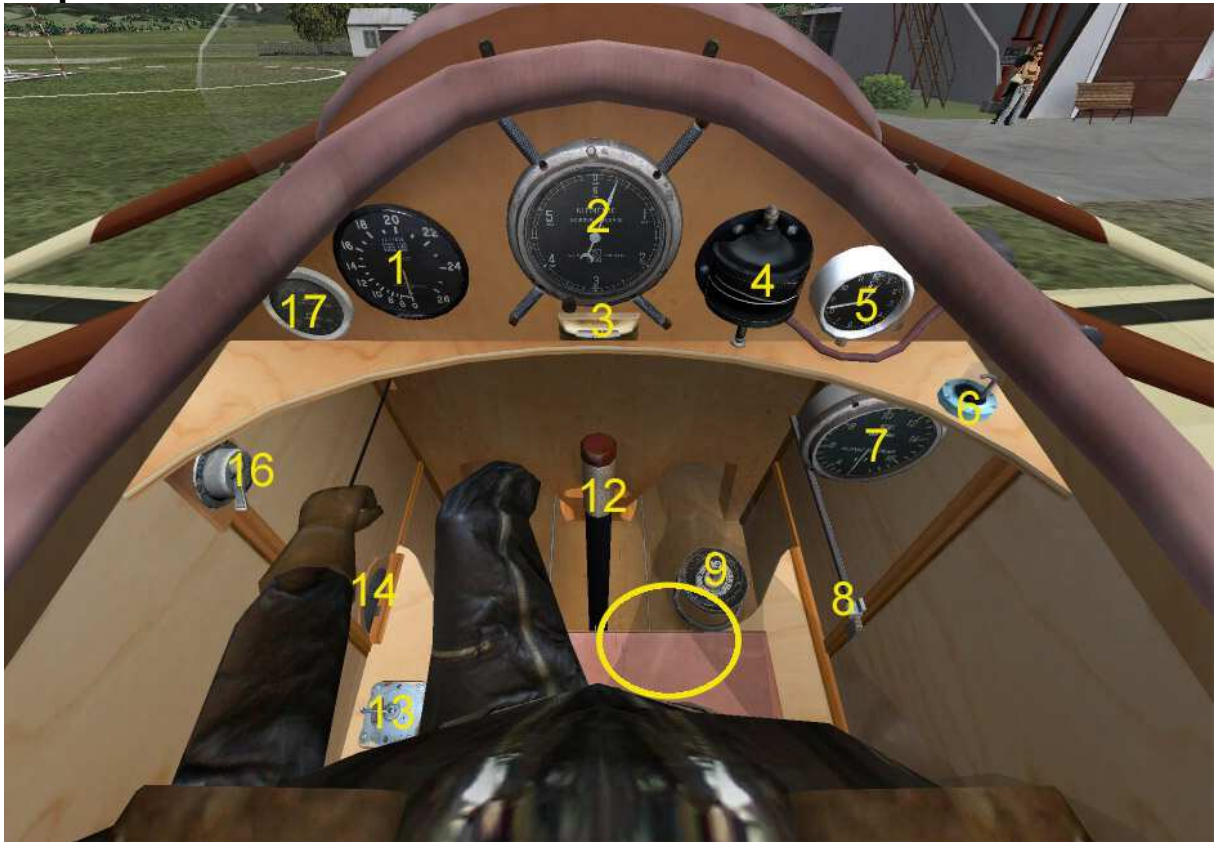
- the second version is from 3rd flying regiment in Piešťany. It has newer camouflage and circle coats-of-arms

TIP: If you don't see this version in FSX, check the button "Show all variations" in selection of aircraft.



## In cockpit

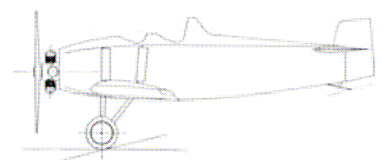
### Rear cockpit



1. Airspeed indicator – km/h
2. Altimeter – big number is altitude in km, the wheel sets altimeter of airport or set to 0m
3. Bank indicator
4. Artificial horizon – powered by agitate air, it doesn't function with engine off
5. Clock
6. Oil pressure indicator
7. Tachometer
8. Fuel valve – vertically – OPEN, horizontally – CLOSED
9. Compass – show, when you click to marked place
10. Rudder Controls
11. Stick
12. Starting magneto – after click at the end of the crank the magneto start rotate.
13. Foot-step
15. Throttle
16. Magnetos – tip: grab the handle and move with mouse horizontally
17. Fuel indicator – litres

### Front cockpit

1. Rudder Controls
2. Stick
3. Throttle



## Flying with Avia BH 5

- Avia BH-5 doesn't have trim and it's necessary to pull the stick a little bit all the time. – ATTENTION! Avia BH-5 doesn't have brakes. The notice BRAKES will show, but it doesn't brake.

### Starting

- fuel valve – open
- throttle - 1/10
- full pull of elevator
- 3-4x rotate with propeller ( you can use the starter magneto on the seat, bottom left )
- free area
- magnetos 1+2 (it's good to grab the handle and move horizontally with mouse)
- rotate with starter magneto so quick, how you can:o)
- 450-500 rpm
- indicate the flow of oil

### Taxiing

- she doesn't have brakes or steerable tail skid ( in MFS it has improve steering )
- during taxiing you must pull the elevator
- you can taxiing on asphalt too, but with helpers at the end of wings and short time

### Before take-off

- free movement of controls
- fuel – fuel valve opened
  - check fuel quantity (for take-off minimum is 18 l)
- oil indication
- magnetos 1+2
- altimeter – set
- seatbelts fastened

### Take-off

- throttle – fluently maximum
- control stick – full pushed, with rising speed fluently pulling at 85-95 km/h easy pull and maintain 0,2 –0,5 m and wait to 110-120km/h
- transition to climb and initial climb realize with 110-120km/h and then contiuue climb at best climb speed 110km/h
- during take-off the aircraft turning to the left, so you must turn to right with rudder

### Climbing

- climb at 110km/h

### Cruise

- max short-term power – 1450rpm – max 3min (speed 150km/h)
- max constant power – 1400rpm – (145km/h 29liters)
- economic flight – 1250rpm (130km/h 23liters)

### Descent

- throttle – idle (600-900rpm)
- speed 110 – 140 km/h

### Approach

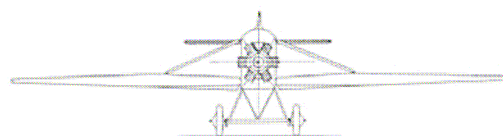
- speed of approach 110-120km/h

### Landing

- transition arch – begin at 7m above rwy and end at 1m above rwy
- float – fluently pull elevator and slow down to 80-90 km/h at 0,1-0,3m above rwy
- landing – land on main gear, after touch skid with rwy full pull the elevator
- landing run – full pull

notes: It's prohibited land on paved rwy (asphalt, concrete)

Only emergency landing is allowed on these rwys and you must count with long landing run.



## Engine shut-down

- throttle idle
- magnetos – 0

## Securing airplane

- check – magnetos –off
- fuel valve – off (horizontal position)
- controls – secure

## Elementary flight manoeuvres

Turn around 360° (max. bank 30°) – minimum speed 120 km/h

Climbing turn – entrance speed 147 km/h, output speed 110 km/h

Slip – speed 110 km/h

Nose-dive – max. speed 186 km/h

## Acrobatic flight manoeuvres

Looping – enter with minimum speed **155-160km/h** and with full pulled stick

Roll – enter with **150-160 km/h**, pull to 30° over horizon and start roll, during roll don't push, the engine would lose rpm.

Stalled turn – enter with speed **145-155km/h**, then full rudder at **90-100km/h**, in nose-dive decrease throttle.

## Czechoslovak Historic Flight

"Czechoslovak Historic Flight" association is an open organization based on the voluntary activities of its members and support of its partners and sponsors. Our members are people of various ages, professions and nationalities as well. They have one thing in common - love for flying, and for the history of flight and all connected with the rich aviation history of our land.

The mission of the association is to promote and popularize aviation and to protect, collect and make available to the public all materials on air activities in the territories of the former Czechoslovakia and the present Czech Republic. The association's core activity is maintenance of a group of historical aircraft, aiming to represent the history of Czech and Czechoslovak aviation.

## Do you want help?

Are you interested in activities of Czechoslovak Historic Flight and would you like to help? It's nothing much easier, you can become a member of Czechoslovak Historic Flight and engage of its works, you can help us with delivery sponsors, or you can support us. Whether financially or supply replacement parts and technics, which has a relation to history of Czechoslovak or Czech aviation.

## CREDITS

**3D model:** Štěpán Obrovský

**Sound** Adam Klášterský , Studio Adagio

**Flying dynamic** Štěpán Obrovský

**Gauges** Štěpán Obrovský

**Textures** Štěpán Obrovský

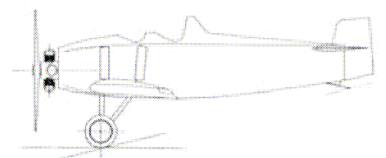
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**Manual:** Milan Mikulecký, Štěpán Obrovský

**Graphic arrangement** Zdeněk Dvořák

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Freeflight Design forum (<http://www.aerodynamika.com/cgi-bin/yabb/YaBB.cgi> )

Zdeněk Kussior (anatolij) – web, comments and critique

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Jan Dvořák – betatester

## **SOFTWARE PIRACY**

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