

Focke-Wulf FW 190 A-3

"ANTON"



FOCKE-WULF



By Chuck

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	(Unit)	LaGG-3	Yak-1	La-5	Il-2	Pe-2	Bf.109F4	Bf.109G2	Fw190A3	Ju-87	He-111
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TEMPERATURES

Water Rad Min	Deg C	80	80	-	80	40	40	40	-	60	40
Max		100	100		110	100	100	100		100-110	95
Oil Rad (OUTBOUND) Min	Deg C	40	40	55	70	-	40	40	40	30	35
Max		100	100	75	115		80	80	110	105	95
Oil Rad (INBOUND) Min	Deg C	-	-	-	40	-	-	-	-	-	-
Max					80						
Cylinder Head Temp Min	Deg C	-	-	120	-	-	-	-	-	-	-
Max				200							

ENGINE SETTINGS

Takeoff RPM	RPM	2700	2700	2400	2200	2700	2600	2500	2500	2500	2400
Takeoff Manifold Pressure	RU: mm Hg GER: ATA	1050	1050	1150	1150	1050	1.3	1.3	1.3	1.3	1.35
Climb RPM	RPM	2600	2650	2300	2050	2600	2600 30 min	2500	2400	2450 30 min	2300 30 min
Climb Manifold Pressure	RU: mm Hg GER: ATA	1020	1050	1150	1050	1050	1.3 30 min	1.3	1.3	1.25 30 min	1.15 30 min
Normal Operation/Cruise RPM	RPM	1700	1850	2300	1850	2200	2200	1900	2200	2100	2200
Normal Operation/Cruise Manifold Pressure	RU: mm Hg GER: ATA	1020	850	900	850	1020	1.0	1.0	1.1	1.2	1.10
Combat RPM	RPM	2650	2650	2400	2050	2600	2600	2500	2400	2250	2300
Combat Manifold Pressure	RU: mm Hg GER: ATA	1050	1050	1150	1050	1050	1.3	1.3	1.32	1.2	1.15
Emergency Power/ Boost RPM @ km	RPM	2700	2700	2400 10 min max	2200	2700	2700 1 min max	2500	2600 7-8 min max	2600 1 min max	2400 1 min max
Emergency Power / Boost Manifold Pressure @ 1 km	RU: mm Hg GER: ATA	1050	1050	1150 10 min max	1150	1050	1.42 1 min max	1.3	1.42 7-8 min Max	1.4 1 min max	1.35 1 min max
Supercharger Stage 1 Operation Altitude	m	0 2000	0 2500	0 2000	-	0 2000	-	-	-	Auto/man modes	Auto/man modes
Supercharger Stage 2 Operation Altitude	m	2000+	2500+	2000+	-	2000+	-	-	-	Auto/man modes	Auto/man modes
*Landing Approach RPM	RPM	2600	2200	2400	1800	2700	1500	1500	-	2000	2300
*Landing Approach Manifold Pressure	RU: mm Hg GER: ATA	As required	600	As required	600	As required	0.6	0.6	-	0.6	As required
Notes				Open Oil Radiator at all times	Close Oil radiator in combat	Flaps 30 on Takeoff & 15 on Landing			Lock tailwheel on takeoff	No Abrupt Throttling	Eng. very sensitive to ata/rpm

AIRSPEEDS

Takeoff – Rotation	km/h	190	200	180	190	250	180	180	200	170	150
Optimal Climb Speed	km/h	270	260	250	250	240	280	280	270	230	N/A
Landing – Approach	km/h	200	180	200	200	200	180	180	190	190	200
Landing – Touchdown	km/h	170	150	170	150	160	160	160	150	150	140-150

History

IL★2 Chuck O.

The Focke-Wulf Fw 190 Würger was a German single-seat, single-engine fighter aircraft designed by Kurt Tank in the late 1930s and widely used during World War II. Powered by a radial engine in most versions, the Fw 190 had ample power and was able to lift larger loads than its well-known counterpart, the Messerschmitt Bf 109. The Fw 190 was used by the Luftwaffe in a wide variety of roles, including day fighter, fighter-bomber, ground-attack aircraft and, to a lesser degree, night fighter.

In autumn 1937, the German Ministry of Aviation asked various designers for a new fighter to fight alongside the Messerschmitt Bf 109, Germany's front line fighter. Although the Bf 109 was an extremely competitive fighter, the Ministry of Aviation was worried that future foreign designs might outclass it, and wanted to have new aircraft under development to meet these possible challenges.

At the time, the use of radial engines in land-based fighters was relatively rare in Europe, as it was believed that their large frontal area would cause too much drag on something as small as a fighter. Tank was not convinced of this, having witnessed the successful use of radial engines by the U.S. Navy, and felt a properly streamlined installation would eliminate this problem.

Kurt Tank felt sure that a quite different breed of fighter would also have a place in any future conflict: one that could operate from ill-prepared front-line airfields; one that could be flown and maintained by men who had received only short training; and one that could absorb a reasonable amount of battle damage and still get back. This was the background thinking behind the Focke-Wulf 190; it was not to be a racehorse but a *Dienstpferd*, a cavalry horse.



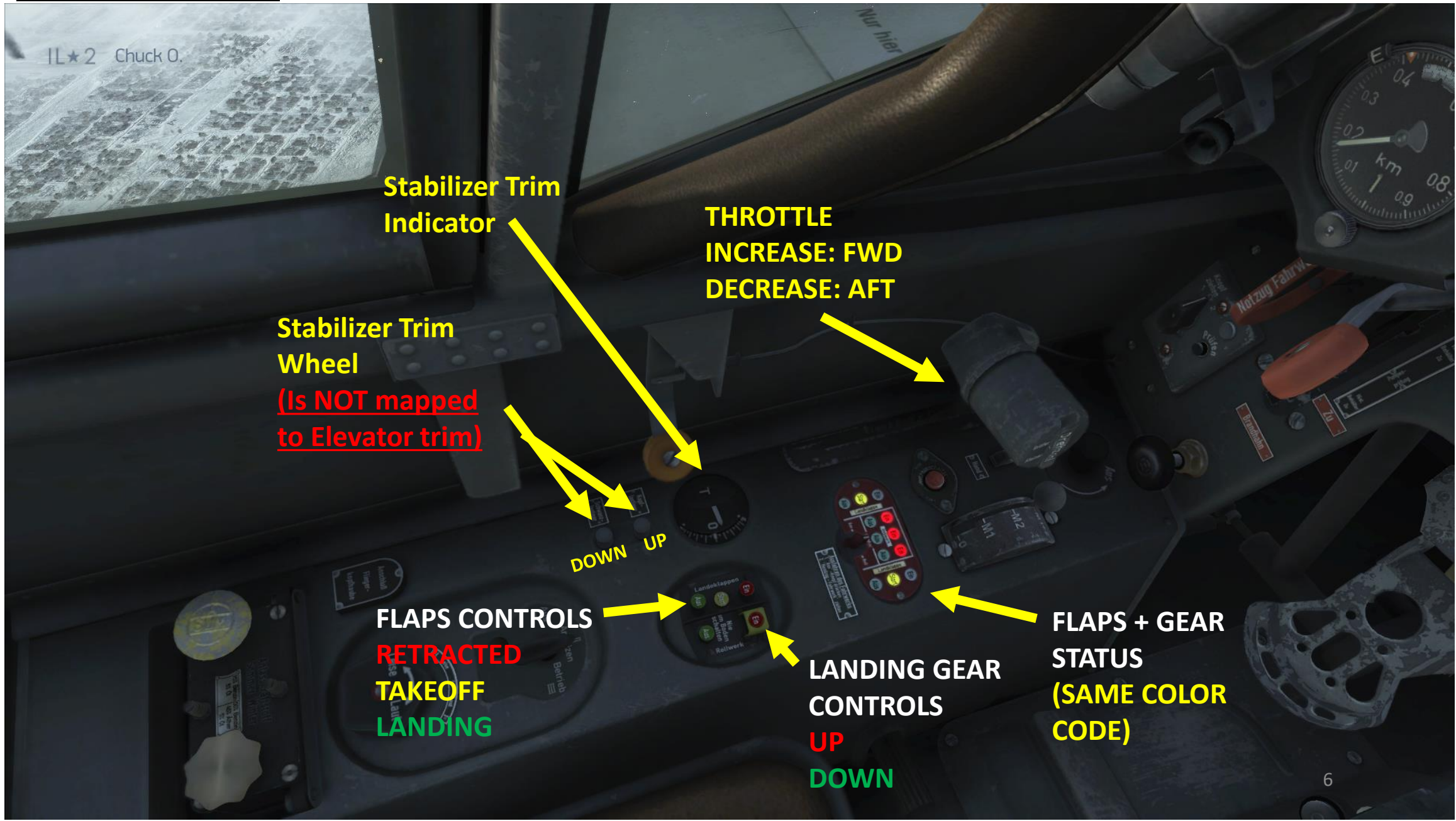
PART I: THE AIRCRAFT

The Cockpit



PART I: THE AIRCRAFT

Left Side



Stabilizer Trim Indicator

Stabilizer Trim Wheel
(Is NOT mapped to Elevator trim)

THROTTLE
INCREASE: FWD
DECREASE: AFT

DOWN UP

FLAPS CONTROLS
RETRACTED
TAKEOFF
LANDING

LANDING GEAR
CONTROLS
UP
DOWN

FLAPS + GEAR
STATUS
(SAME COLOR
CODE)

PART I: THE AIRCRAFT

Left Side

*** Prop Pitch can only be modified once MANUAL prop mode has been engaged.**

Engine controls	Switch propellers pitch control mode: manual/auto	RSht+P	joy1_b25
Weapons controls			
Flight leader commands	Propellers: high pitch	RSht+Equals	joy1_b26
Pilot gestures	Propellers: low pitch	RSht+Minus	joy1_b27

Prop Pitch Mode
MANUAL: AFT
AUTO: FWD



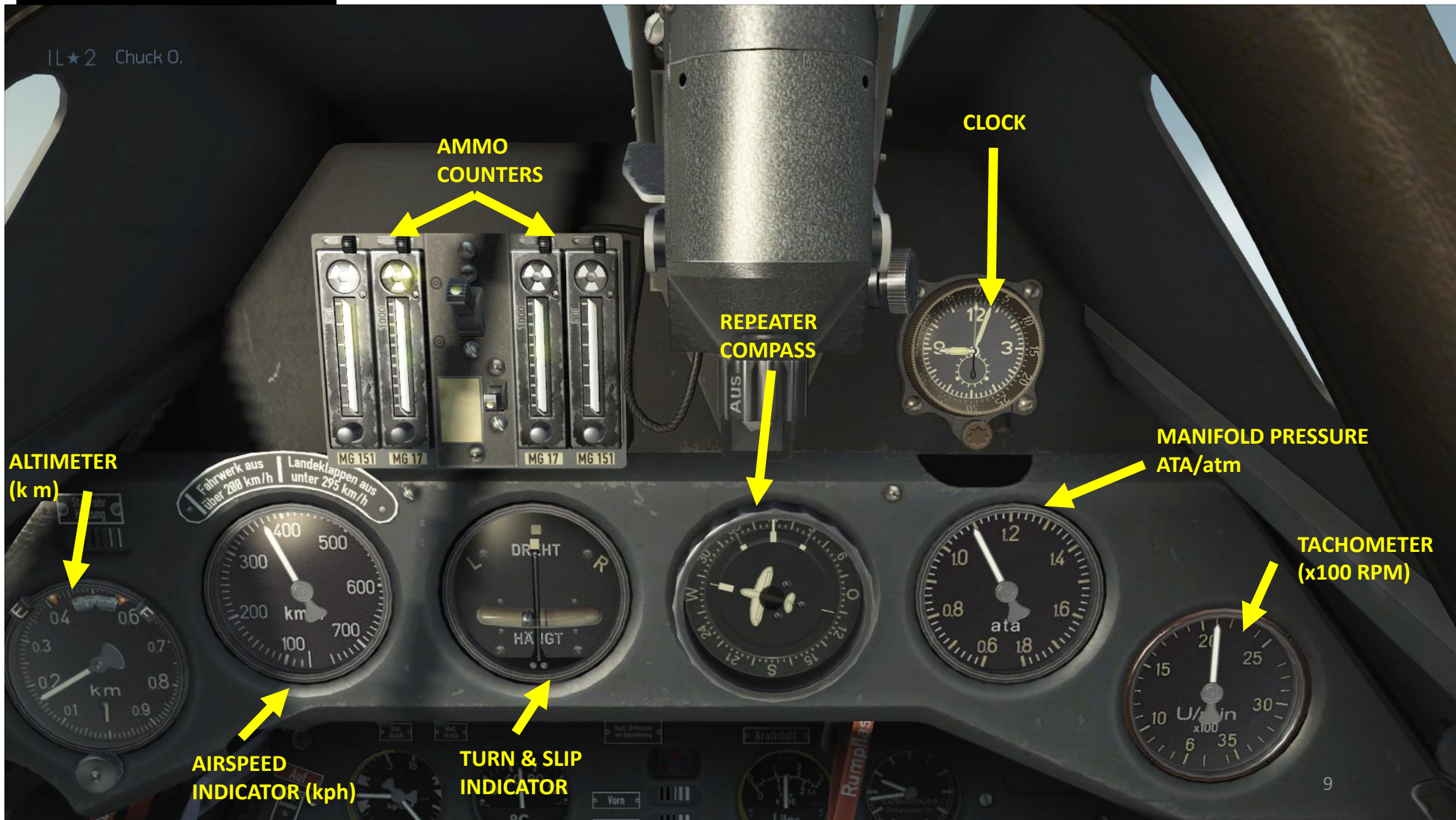
PART I: THE AIRCRAFT

Right Side



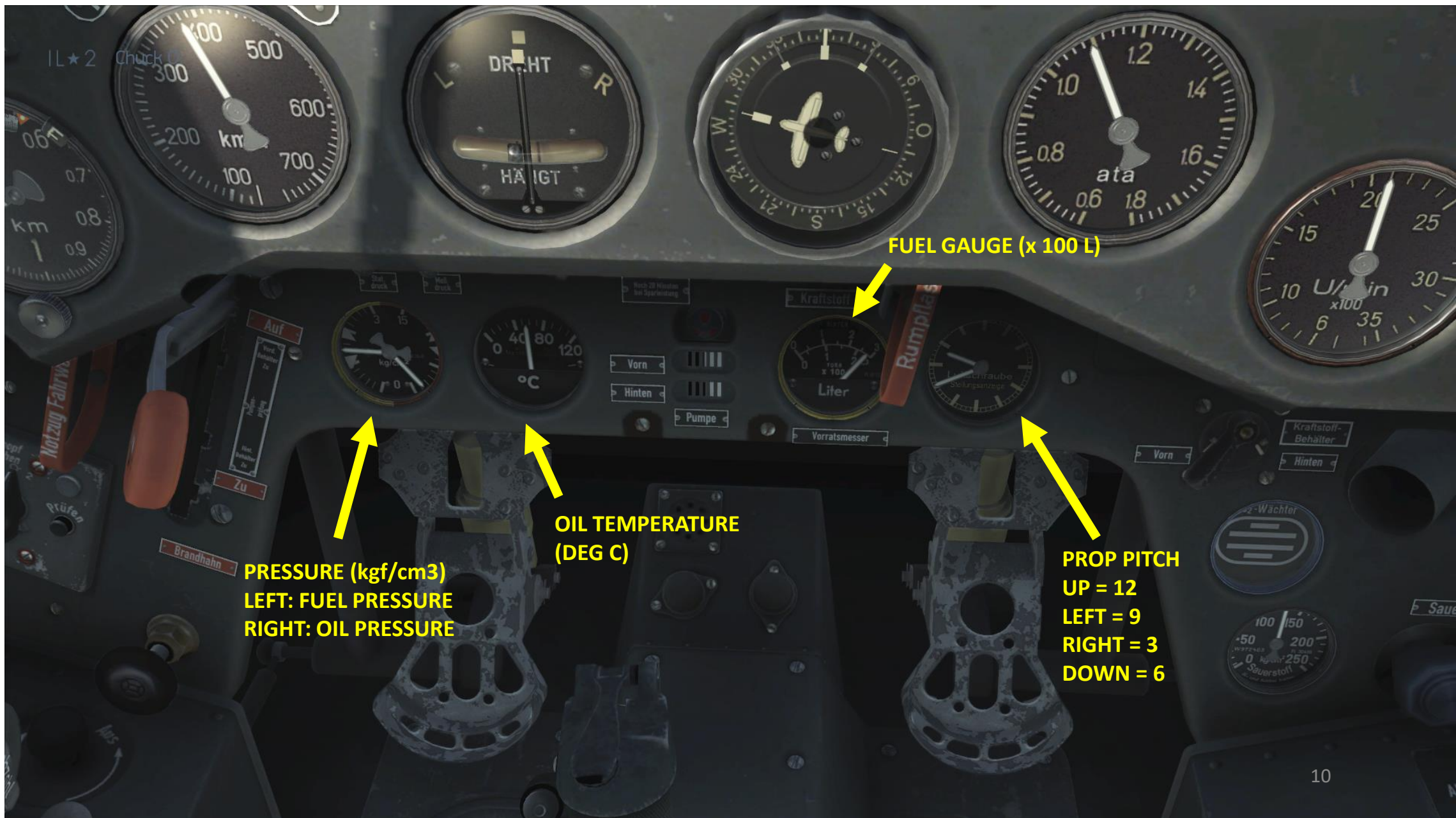
PART I: THE AIRCRAFT

Front High



PART I: THE AIRCRAFT

Front Low



FUEL GAUGE (x 100 L)

PRESSURE (kgf/cm³)
LEFT: FUEL PRESSURE
RIGHT: OIL PRESSURE

OIL TEMPERATURE
(DEG C)

PROP PITCH
UP = 12
LEFT = 9
RIGHT = 3
DOWN = 6

Wings

NOTE: IT IS EASIER TO OPEN YOUR CANOPY IF YOU WANT TO LOOK FOR THE MECHANICAL LANDING GEAR INDICATOR. OR... YOU CAN SIMPLY CHECK YOUR LANDING GEAR INDICATOR LIGHTS ON THE LEFT CONSOLE.



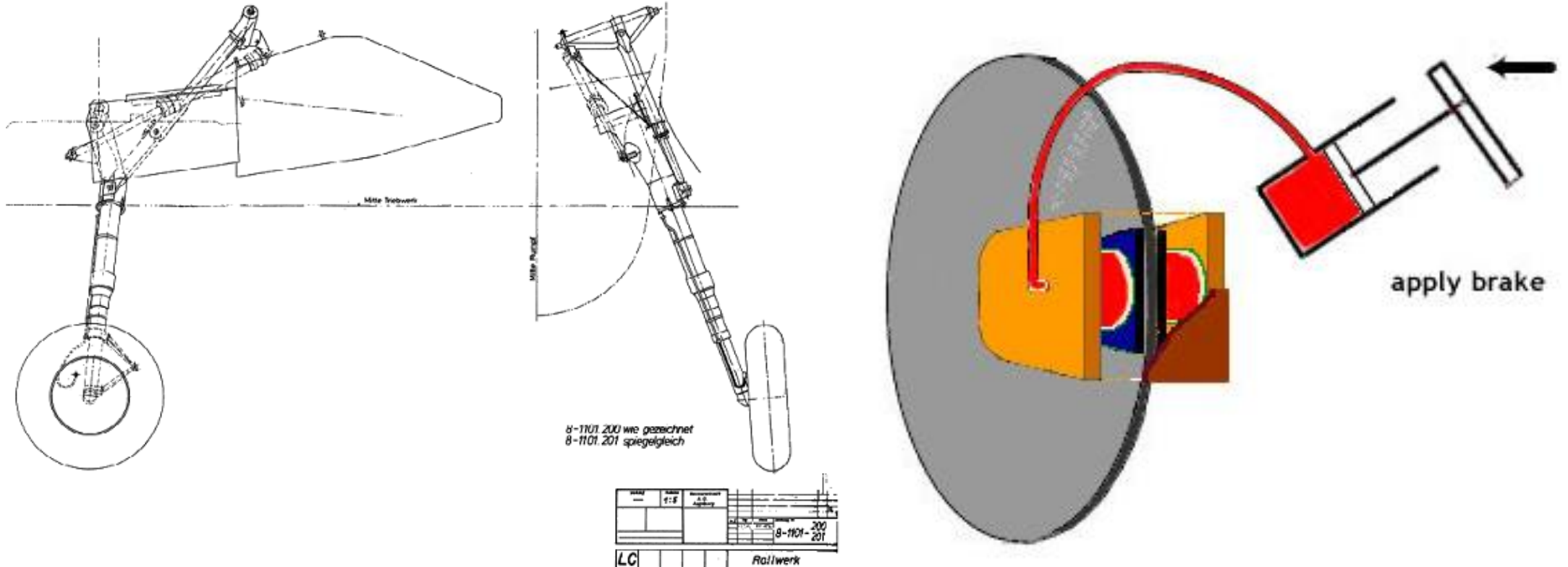
Important key bindings

- The Fw 190 has a radial engine, so you do not need to think about radiators.
- You can control your prop pitch (which will affect your RPM), but only if you have engaged the MANUAL PROP PITCH mode. Make sure you have a key to it. Changing prop pitch manually is by no means necessary, but it can allow you to fine-tune your RPM setting and gain a marginal gain in performance as the AUTO mode already does that for you.
- Unlike in Russian aircraft, you do not control your mixture setting in the 190.
- In AUTO PROP PITCH mode, your RPM will be automatically adjusted in function of your ATA (Manifold Pressure) input.

Engine controls	Switch propellers pitch control mode: manual/auto	RSht+P	joy1_b25
Weapons controls			
Flight leader commands	Propellers: high pitch	RSht+Equals	joy1_b26
Pilot gestures	Propellers: low pitch	RSht+Minus	joy1_b27

Important key bindings

- The Fw 190, unlike most Russian planes, has a “toe brake” or “heel brake” system, which is linked to each individual wheel of your landing gear.
- In order to brake, you need to hold either your left or right wheel toe brake key to steer your aircraft.
- The main landing wheel brake system employs hydraulically actuated disc-type brakes. Each brake is operated by individual master brake cylinders located directly forward of the instrument panel. The brakes are selectively controlled by means of toe pedals incorporated into the rudder pedal assembly.



PART III: TAKEOFF

- Taking off in the Fw 190 is straightforward if you follow these steps for a cold engine start.

1) Crack your throttle about 15 %

2) Set your prop pitch mode to “AUTO” (or set 11:30 prop pitch for MANUAL)

3) Ignite (“E” key by default)!

4) Wait for your oil temperature to reach 40 degrees C

5) Taxi to the runway (lock tailwheel by pulling on your stick)

NOTE: Engine torque will pull you to the left, so make sure that you compensate accordingly with rudder. A good trick is to hold right toe brake when powering up and progressively release the brake once you are able to counter initial torque with rudder.

6) Set your flaps to “takeoff” position

PART III: TAKEOFF

7) Set your prop pitch mode to AUTO. If you set it to MANUAL, put the prop pitch needle in between the 11:30 to 12:00 position.

8) Lock your tailwheel once lined up on the runway by pulling your stick towards you. VERY IMPORTANT!!!

9) Throttle up to max power. In order to preserve your engine, I recommend going for 2500 RPM and 1.3 ATA. Correct heading with small rudder input.

CAUTION: DO NOT EXCEED 1 MINUTE AT FULL POWER (2700 RPM/1.42 ATA)

10) As soon as you reach 170 kph, center the stick and level out to pick some speed.

11) When you reach 200 kph, rotate gently.

12) Once you are up in the air, retract flaps, pull your gear up and start climbing. Adjust manifold pressure accordingly (see engine management in part V).

PART IV: LANDING

- 1) Deploy landing gear when going slower than 350 kph.
- 2) Deploy flaps 20 degrees when going slower than 250 kph.
- 3) Set your prop pitch to AUTO or set the needle at 11:30 in MANUAL mode. Throttle as required to maintain approach speed at 190 kph
- 4) Trim nose down as flaps generate extra lift.
- 5) Cut throttle when reaching runway and start a gentle, but firm flare.
- 6) Touchdown at 150 kph in a 3-point attitude.
- 7) Once on the ground, pull back on the stick to lock your tailwheel and tap your brakes.



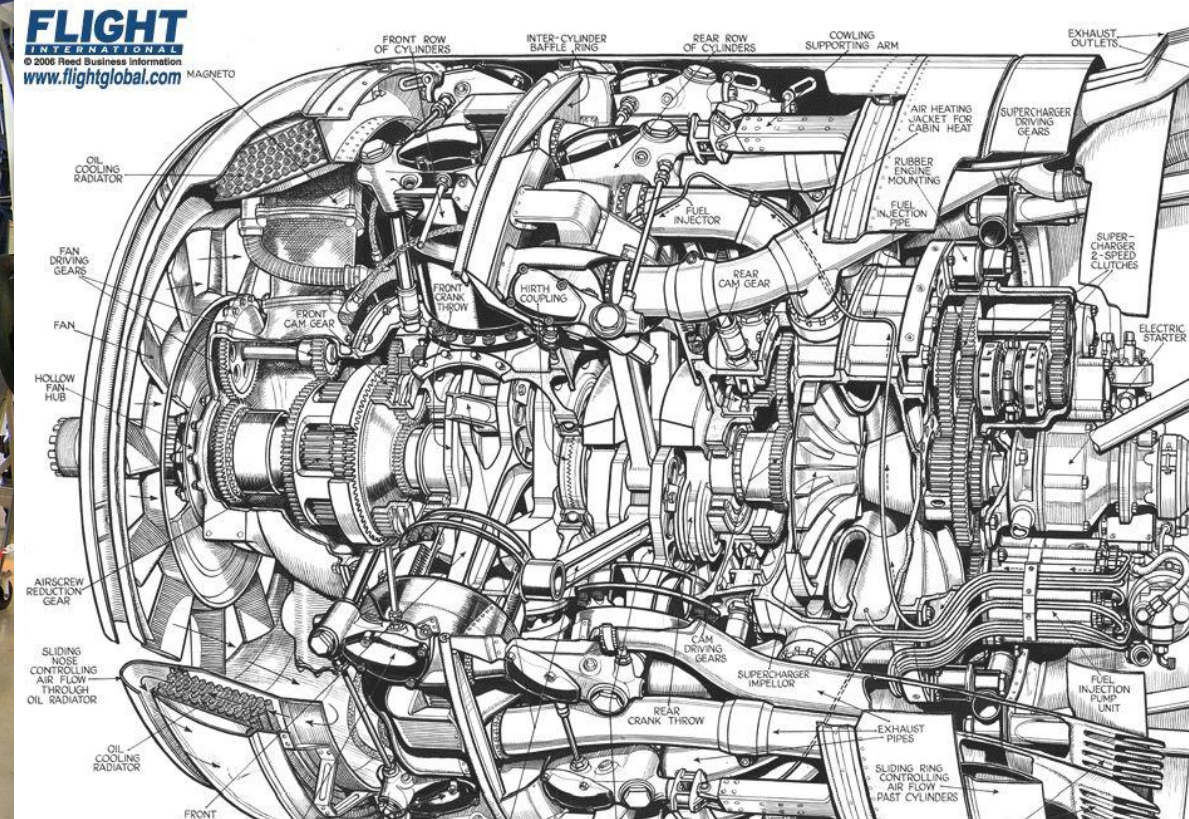
Powerplant

The FW 190 A-3 is powered by the **BMW 801 D-2**, an air-cooled 14-cylinder radial aircraft engine. In the 1930s, BMW took out a license to build the Pratt & Whitney Hornet engines. By the mid-30s they had introduced an improved version, the BMW 132. The BMW 132 was widely used, most notably on the Junkers Ju 52, which it powered for much of that design's lifetime.

In 1935 the RLM funded prototypes of two much larger radial designs, one from Bramo, the Bramo 329, and another from BMW, the BMW 139. BMW's design used many components from the BMW 132 to create a two-row engine with 14 cylinders, supplying 1,550 PS (1,529 hp, 1,140 kW). After BMW bought Bramo in 1939 both projects were merged into the BMW 801, learning from the problems encountered in both projects.

The 801 retained the 139's older-style single-valve intake and exhaust, while most in-line engines of the era had moved to four valves per cylinder, or in British use for their own radials, sleeve valves. Several minor advances were worked into the design, including the use of sodium-cooled valves and a direct fuel injection system, manufactured by Friedrich Deckel AG of Munich.

One key advancement was the Kommandogerät (command-device), a mechanical-hydraulic unit that automatically adjusted engine fuel flow, propeller pitch, supercharger setting, mixture and ignition timing in response to a single throttle lever, dramatically simplifying engine control. The Kommandogerät could be considered to be a precursor to the engine control units used for many vehicles' internal combustion engines of the late 20th and early 21st centuries.



Operating Limits

- Min oil temperature: 40 deg C.
- Max oil temperature: 110 deg C.



HOW TO READ FUEL GAUGE

← ALSO APPLICABLE FOR HE-111 GAUGES!!!

FW 190 has 2 fuel tanks: one at the rear and one at the front.

The upper dial from 0 to 3 stands for 0 to 300 litres. (rear tank)

The lower dial from 0 to 2.3 stands for 0 to 230 litres. (front tank)

Normally, you could switch between the 2 tanks with a toggle, but this functionality is not implemented in BoS.

Instead, the fuel gauge will cycle automatically and periodically between the FWD (Vorn) and AFT (Hinten) tanks.

Recommended Settings

- Takeoff
 - 2500 RPM, 1.3 ATA
- Climb
 - 2400 RPM, 1.3 ATA, speed 250-350 kph (30 min max)
- Normal Operation (Cruise)
 - 2200 RPM, 1.1 ATA
- Combat (Max Continuous Power)
 - 2400 RPM, 1.32 ATA (30 minutes max)
 - **2600 RPM @ 1.42 ATA (MAX 7-8 MINUTES)**



About Going Full Throttle

- Keep in mind that going “full throttle” will actually go in emergency power. You cannot sustain this for very long, so watch your ATA rather than “feel” your throttle position.



PART VI: AIRCRAFT PERFORMANCE

- Range: 800 km
- Fuel Max Capacity: ~525 L
- Endurance: 75 min (1h15)
- Operational ceiling: 9600 m
- Optimal Climb Speed: 270 kph
- Best Climb Rate: 900 m/min
- Turn time: 22 s
- Note: Your fuel loadout will impact your aircraft's performance, but also your weapon loadout. Performance data often being subject to many factors (test conditions, state of aircraft (captured vs factory fresh), etc.), these numbers are to be taken with a grain of salt. Just like today, aircraft performance can and will vary between the real values and the values that you get on paper.



- The 190 is not a good turner. Do not play the Yak's game if you want to live.
- A good 190 pilot should prefer boom and zoom tactics over turning in the horizontal plane. The 190 has great dive speed and good controllability at high speeds.
- The 190 requires a steady hand as it has vicious stall characteristics below 200 kph. In a tight turn, your port wing will drop to the left and flick you over into a controlled spin without warning. You can use this to your advantage if you want to escape a fighter on your six as nobody will be able to recover or turn fast enough to follow you.
- The Focke-Wulf's biggest advantage is its tremendous speed, its ability to retain energy and its great roll rate.
- You have some of the deadliest guns and cannons in the sim: head-on passes are generally risky, but the 190 has a serious advantage in terms of firepower.
- Using your advantageous roll rate can help you make rapid direction changes.
- Fly at high speeds: this is where the FW shines. Like the La-5, you should use minimal elevator input in order to maintain high speed/energy.

PART VI: AIRCRAFT PERFORMANCE

MAXIMUM SPEED
QMB CONDITIONS
(Graph by Matt)

