Focke Wulf

Fw 190 D
Baureihen D-9, D-11 und D-13

Ta 152 H
Baureihen H-0 und H-1

Handbuch
Pilots Manual

Nur für den
Dienstgebrauch!

Focke Wulf Fw 190 D
and
Focke Wulf Ta 152 H

Expansion for Microsoft Flight Simulator X

User Manual

A Production of

Classics Hangar

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System Requirements:
Windows XP SP 2 , Windows Vista, Windows 7 or Windows 8,
Microsoft Flight Simulator X @ Service Pack 2, Gold or Acceleration Expansion Pack,
Dual Core Processor @ 2.4 GHz or better
512 MB DX9 Graphics Card
350 MB Disk Space for the Executable 1,46 GB for the Installation.

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Introduction

The third part of the award winning Classics Hangar Fw190 series puts you into the cockpit of the last models of this exceptional German fighter aircraft of World War II, the Focke Wulf Fw 190 D and the high altitude fighter Focke Wulf Ta 152 H.

Find out how the Fw 190 D restored the competitiveness of the Luftwaffe's fighter stable and experience why the impressive performance of the Ta 152 H became a live insurance for it's pilots during the final battles of the war.

The cockpits are researched and implemented with the familiar Classics Hangar love for detail and accuracy.

A tool helps you to configure your FSX for the use of the highly detailed 2048 or 4096 pixel textures. A payload manager allows you to change fuel and payloads „on the fly" without pausing the simulation and also grants easy access to some selected simulation commands. The fully functional virtual cockpit is completed by a 2d radio which combines a vintage look with access to modern COMM, NAV and ADF functionality.

The AvHistory '6DoF' flight dynamics not only let you fly the Fw190D and Ta152H "by the numbers" but also give you an organic sense of flying these impressive machines through air.

Fw190D-9

Already by early 1942 Focke Wulf began construction work with different engines in an effort to improve the Fw190's high altitude performance. On schedule were plannings for projected variants B, C and D. Since the Junkers Jumo 213 equipped Fw190D promised the most potential trials began by September 1942 with the Fw190V17 test aircraft.

The water-cooled inverted V in-line engine Junkers Jumo 213A offered 1750 metric HP take off power and promised a greatly improved high altitude performance.

Implementation of the new engine required a number of changes to the original airframe. The engine mount was strengthened and the engine nacelle was increased by some 60 centimeters/2 ft. Dive speed was improved thanks to the more streamlined nacelle.

To improve the center of gravity a 500mm/1.6ft long cylindrical connecting piece was inserted in front of the tail fin, the socalled "Rumpftonne" (fuselage drum) and a 140mm/0.4ft wide steel case was added to the vertical fin.

Since the Jumo 213 offered improvements merely at higher altitudes efforts continued to improve it's performance. When the Fw190D-9 first entered service by October 1944, all delivered aircraft received a manifold boost kit that increased power to 1900 metric HP. During the production methanol-water cooling was implemented that allowed for another performance increase to 2100 HP take off power.

The armament with two MG131 machine guns in the upper nose and two 20mm cannons MG151/20 was similar to that of the Fw190A-8 which was the constructional base of the D-9 as indicated by the numbering sequence in the name: The A-8 develops into the D-9. Like it's predecessor the D-9 was able to carry a variation of payloads, amongst them a droptank or a bomb on an ETC 504 rack under the fuselage.
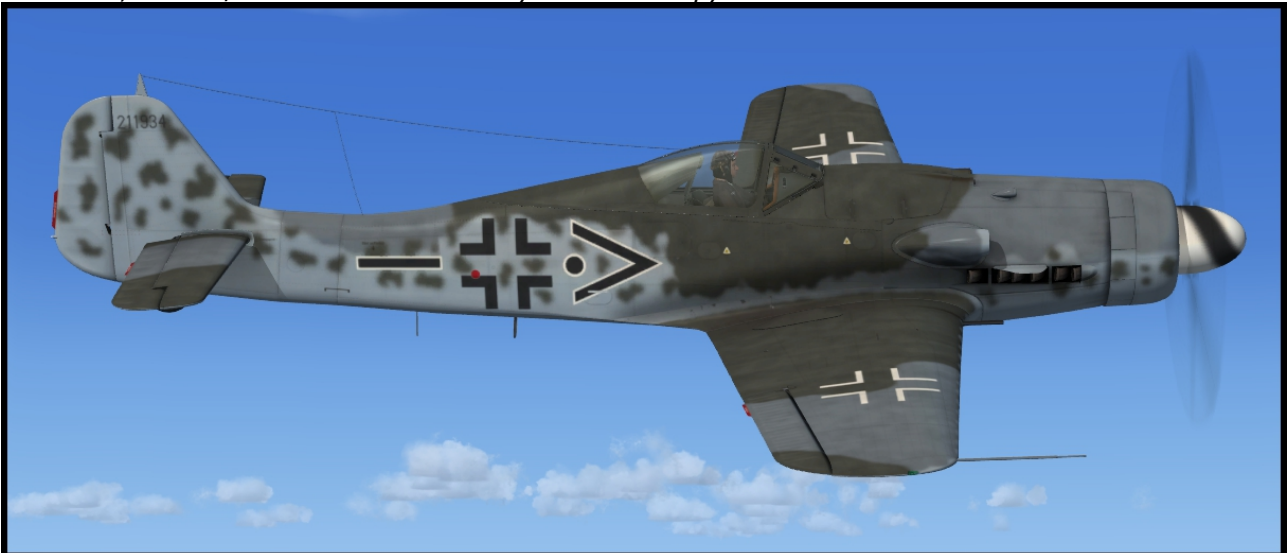
The first unit to convert to the Fw190D was II./JG 54 by October 1944.

When the Fw190D-9 finally entered service it was merely meant as a stop gap until the new Ta152 reaches production status, ironically it turned into one of the major Fw190 variants overall with some 1804 examples being produced until war's end.

Fw190D-9, 4./JG 2. Note the old style canopy, indicating the initial FW production batch.
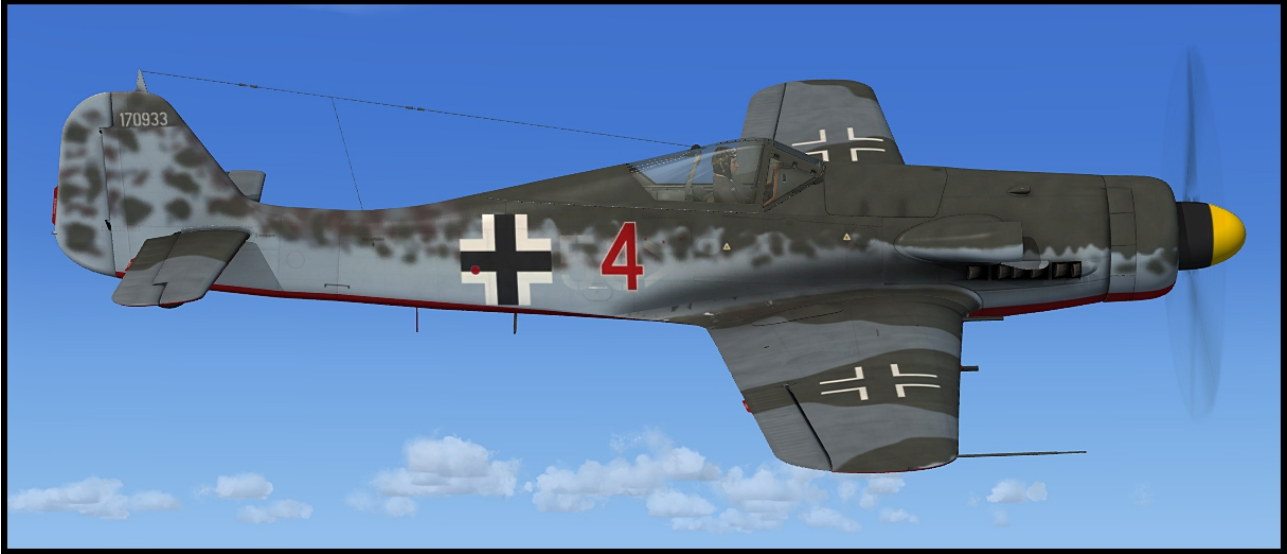

Fw190D-9, Stab II./ JG 26. Note the later style blown canopy hood.

Fw190D-11

A new and improved engine Jumo 213 F was already undergoing test runs when the D-9 entered production. The 3 stage two gear Jumo 213F with a greatly improved critical altitude was basically the same engine as the 213E which was scheduled for the Ta152H excluding the intercooler. Like with the 213A, supercharger air was cooled by means of methanol water injection. A small series of about 20 aircraft Fw190D-11 was produced during February 1945 utilizing the Jumo 213F. The nose MG 131 were deleted from the D-11 allowing for a more streamlined cowling. Instead a pair of MK 108 cannons was mounted in the outer wings.

Fw190D-11, Platzschutzstaffel JV 44. Note the Jumo213's enlarged oval air intake and the streamlined upper cowling. Also note the old style canaopy, probably being added to this particular machine during a repair.

Fw190D-11, Verbandsführerschule GdJ.

Fw190D-12

Like D-11, but Mk 108 firing through the propeller hub, outer wing cannons deleted. There's no reliable information available on this subtype so there is no depiction included.

Fw190D-13

Like D-11, but MG151/20 cannon firing through the propeller hub, no outer wing cannons. There were supposedly only two test aircraft of the D-13 produced and delivered to operational units. One of them was captured intact by the allied at Flensburg-Weiche airfield in Northern Germany. "Yellow 10" was obviously the personal mount of the Geschwader's last Kommodore Major Franz Götz as evidenced by the lettering "Kommodore" under the radiator. The aircraft was selected for evaluation and ferried to

Gilze-Rijen airfield in the Netherlands and later to Cherbourg in France and shipped to the USA. After a decades-long Odyssey and several restorations the Fw190D-13 "Yellow 10" is today part of the Flying Heritage Collection of multi millionaire and aviation enthusiast Paul Allen and is on display at the Museum of Flight in Seatlle, USA.
This is the sole known example of it's subtype and additionally one of only two surviving Doras worldwide so we pay some special attention to it. Fw190D-13 "Yellow 10" comes in three different paint schemes documenting it's history over the decades: The colors it wore during it's service with JG 26, it's state after being captured and ferried to Gilze-Rijen and finally the fresh colors of today as on display in the Museum of Flight.

Fw190D-13, JG 26

Fw190D-13, „USA 14"

Ta 152 H

Intelligence reports indicated that the Americans were working on pressurized cabins and high altitude engines. To counter the threat in time the RLM – the German air ministry- filed the requirements for a high altitude fighter to the Messerschmitt and Focke Wulf factories. Focke Wulf's technical director Kurt Tank was honoured whilst all new designs were to receive his name. Under the designation "Ta152A" he offered a heavy fighter based on the Fw190A equipped with the Junkers Jumo 213, but since this engine was not readily available by that time the project was cancelled altogether. Planning on a then designated Ta152H (H= "Höhe" - altitude) continued by mid 1944. Compared with the Fw190D-9 the new high altitude fighter had a greatly enlarged wing with an aerodynamic area of about 23.5m²/253ft² and a pressurized cabin. The engine was yet again moved forward by 672mm/2.2ft to accommodate for the Mk108 engine cannon. The wing was moved forward by 420mm/ 1.38ft and the fuselage drum was added in front of the tail fin. The tail assembly itself was the new so-called "Einheitsheck" (standard tail) which could also be mounted to any other version of the Fw190. Due to the pressurization requirements the signal flares were to be operated electrically. A switch box was located below the main panel and the flares were located in the fuselage drum 4 on each side. How desperate the situation was for the Luftwaffe that late during the war is evidenced by that that the Ta152H-0 pre production aircraft were forced into production after just 30 hours and 52 minutes flying time with the prototypes. Teething problems with the pressurized cabin and the centre of gravity were not fully ironed out by this time.
The Ta152H's Jumo 213E was equipped with an intercooler that allowed for additional methanol water boost giving the engine a take off power of about 2250 metric HP.
The H-0 used GM-1 nitrous oxide injection, the H-1 carried additional 383 liters of fuel and 75 liter methanol-water in wing tanks. GM-1 nitrous oxide was limited to 85 liters due to centre of gravity considerations.
The sole unit to ever be equipped with the Ta152H was JG 301 who received an unknown number of Ta152H-0 and H-1 beginning by January 1945. There's currently proof for 44 H-0 and 25 H-1, totalling a production 69 aircraft.

Ta152H-0, green 4, Stab/JG 301

Ta152H-1, yellow 1, 7./JG 301

Before you begin

<u>Texture-Manager:</u>
The Classics Hangar Fw190D/Ta152H comes with a texture resolution twice or four times as high as the default resolution. Making full use of the higher resolution requires a certain setting in the FSX configuration file that the Texture Manager will do for you. You can also configure to use either 2048 or 4096 pixel resolution textures. We suggest to use 2048 pixel textures initially.
You can re-run the Utility at any time from the following shortcut:

„Start\All Programs\Classics Hangar\Fw190D - Ta152"

Note:
Whenever you do changes to the graphics settings from within FSX, the configuration will revert back to default values. As a result you may experience blurry textures with your aircraft. In that case close FSX and re-run the Texture Manager.

When running the Fw190D/Ta152H for the first time, you will be prompted to allow „ClassicsHangar_XMLSound.gau" and "Payload_Manager.dll" to be added to the trusted list. Click **Run** and also click **Yes** in the next po-up window to allow the gauges to be always trusted and allowed.

Paintkit

There is a layered paint kit in psd format available as an optional download to make easier the creation of user made repaints. A download link can be found at

„Start\All Programs\Classics Hangar\Fw190D - Ta152\check for updates"

The Cockpit

There are only little changes in the Fw190D cockpit when compared to the predecessor Fw190A-8, all due to the new engine Jumo 213. There is a new coolant temperature indicator in the lower panel, a methanol-water pressure gauge and an emergency handle for the so-called "Motorbediengerät", the motor control unit, basically the Junkers-Pendant of the BMW 801 Kommandogerät. An already familiar feature with this motor control unit is the automatic rpm and mixture control so the pilot can fully concentrate on flying the aircraft.
In the Ta152H cockpit stands out the fact that many of the panels are made of wood in order to save alloys that were on short supply that late in the war. The cockpit sees the addition of a cabin pressure gauge and a switch box to operate the electrically fused signal flares as well as emergency valves for gear and flap operation which are implemented hydraulically. Gear and flap indicators are heavily simplified.

Operating the FS Aircraft

In the following we will discuss the technical/procedural details of operating some specific cockpit systems in the aircraft.

Detailed start-up and flying procedures can be gathered from the in-flight check-lists and references.

All gauges are in metric units, the labels are naturally in German language. However, to serve an international audience, all buttons, levers, gauges and labels show an English language tool tip when holding the mouse over them. All flight and engine gauges display a tool tip in international units.

Most systems are operated straight forward, however fuel usage, gear, trim and flap operation may require a closer look and some practice to getting used to. This is explained farther on in this document.

Most buttons and levers are operated by a single left click. Some items such as the gear handle or the drop tank release use left click to pull and left-release to release.

Multi-position switches such as the bomb selector or the fuel tank display selector use left and right clicks to step fore and back through the positions. Rotating items like the compass rose can be dragged with the mouse or dialled with the mouse wheel.

A few items such as the fuses in the rear electrical panel are animated but don't have a specific FS function. This is to find a good balance between realism and usability. You probably don't want to push 20 buttons before your flight instruments work when changing a plane in FS.

Some buttons and switches may not be easily in reach from within the default virtual cockpit view. To come around this issue multiple camera views are arranged, accessible using the "A" and "Shift + A" keys on the keyboard.

The FuG 16 Radio was only accessible from a service flap on the left fuselage side so frequencies were pre-tuned and accessible by the pilot via some remote controls in the left cockpit console. The pilot only had the option to fine-tune a pre-selected frequency within a limited range. To overcome the limitations of the wartime radios we developed a vintage looking popup radio which gives you access to the most common COMM, NAV and ADF functions (Shift + 2). The somewhat impractical use of the virtual cockpit buttons in older version of our Fw190 simulation has been largely dropped except the OBS operation. A load manager (Shift + 3) grants you easy access to fuel and bomb load as well as easy operation of some commonly used FS operations.

Flying at Night

There is no gauge back lighting in the Fw 190. However, dials and labels are painted with "Leuchtpaste", a fluorescent white paint that illuminates with a green glow in the dark.

Fw190D Panel

1. Ammo Counter
2. Gun sight
3. AFN2 Radio Navigation Indicator
4. Cockpit Vent
5. Altimeter
6. Airspeed Indicator
7. Turn Coordinator/ Art. Horizon
8. Variometer
9. Electr. Slave Compass/OBS
10. Manifold Pressure
11. RPM Indicator
12. Gear Handle
13. Fuel Cock
14. Engine Control Unit Emergency Handle
15. Drop Tank Release
16. Oil/Fuel Pressure
17. Oil Temperature
18. Coolant Temperature
19. MW-50 Pressure
20. Fuel Content
21. Low Fuel Indicators
22. Fuel Content Display Selector
23. Oxygen Blinker
24. Oxygen Pressure
25. Oxygen Valve

Fw190D left Console

1. Primer Pump
2. Gear and Flaps Toggles
3. Trim Switch
4. Gear Indicator
5. Trim Indicator
6. Lever Throttle
7. MW-50 Switch
8. Magnetos
9. Main Circuit Breaker
10. Cockpit Lights

Fw190D right Console

Fuses/Switches

1. Canopy Handle
2. On board Clock with Stop Watch
3. Starter
4. Canopy Emergency Release
5. Fuel Pump Forward Tank
6. Fuel Pump Rear Tank
7. Fuel Pu,p Drop Tank

a. Bomb
b. Gun Sight (n.F.)
c. Gauges (n.F.)
d. Position Lights
e. Cockpit Lights
f. Pitot Heat
g. Ignition
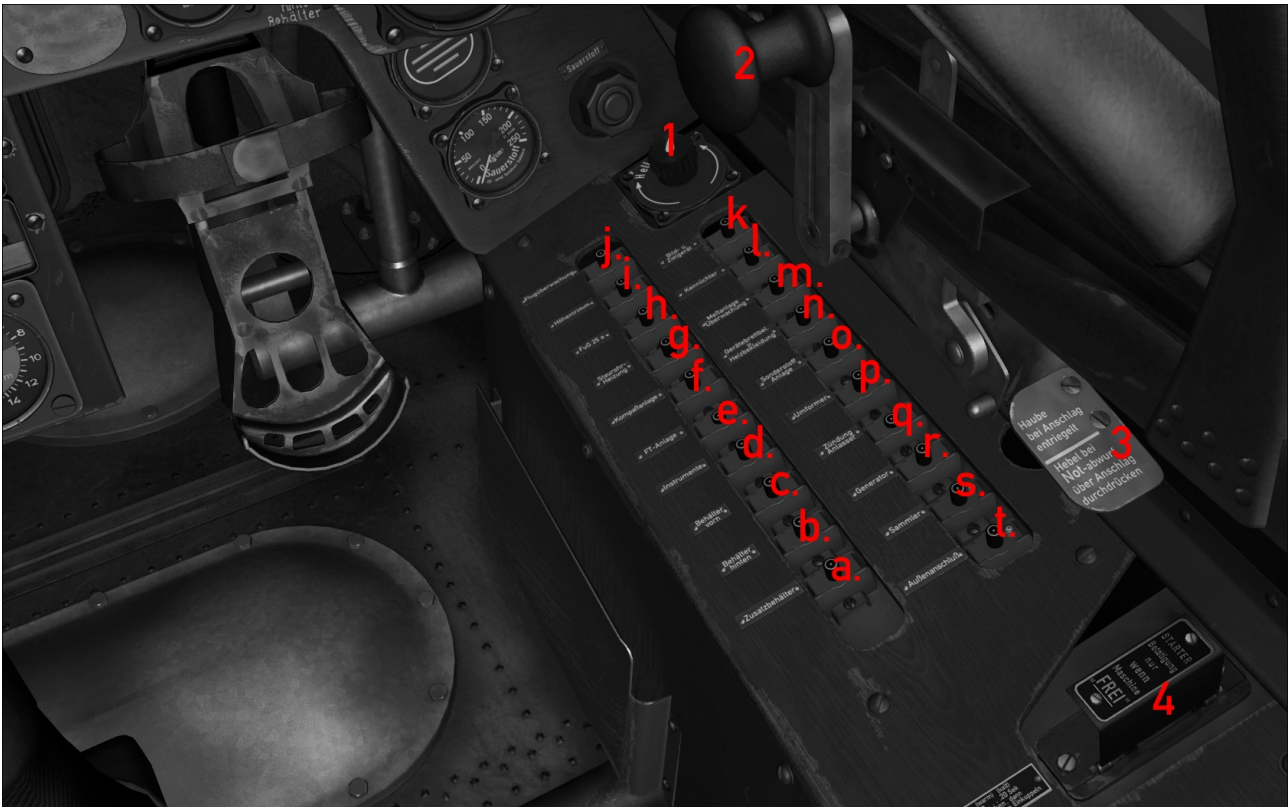h. Radios
i. Generator
j. Battery

Ta 152 H Panel

1. Ammo Counter
2. Gun Sight
3. AFN 2 Radio Navigation Indicator
4. Altimeter
5. Airspeed Indicator
6. Turn Coordinator/Art. Horizon
7. Variometer
8. Electr. Slave Compass/OBS
9. Manifold Pressure
10. RPM Indicator
11. Gear Lever
12. Fuel Cock
13. Engine Control Unit Emergency Handle
14. Drop Tank Release
15. Gear Emergency Valve
16. Flaps Emergency Valve
17. Oil/Fuel Pressure
18. Oil Temperature
19. Coolant Temperature
20. Fuel Content Indicator
21. Low Fuel Warnings
22. Fuel Content Display Selector
23. Oxygen Blinker
24. Oxygen Pressure
25. Oxygen Valve
26. Hydraulic Pressure
27. Signal Flare Switches
28. Cockpit Pressure Indicator

Ta 152 H left Console

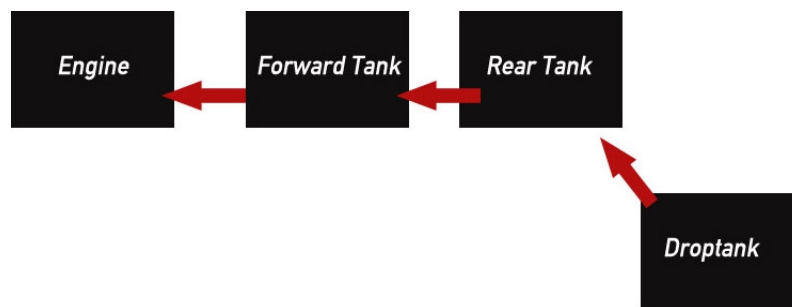|	
1. Canopy Locking	7. WEP Switch
2. Primer Pump	8. GM-1 Vent (n.F.)
3. Flaps Lever	9. MW-50/GM-1 Selector (H-1 only)
4. Lever Throttle	10. Power Switch
5. Trim Switch	11. Magnetos
6. Trim Indicator	12. Gear and Flaps Indicator

Ta 152 H right Console

Fuses/Switches

a. Fuel Pump Drop Tank
b. Fuel Pump Rear Tank
c. Fuel Pump Forward Tank
d. Instruments (n.F.)
e. Radios
f. Compass (n.F.)
g. Pitot Heat
h. FuG 25 (n.F.)
i. Elevator Trim
j. Flight Gauges
k. Gun Sight (n.F.)
l. Position Lights
m.Equipment (n.F.)
n. Cockpit Light
o. War Emergency Power
p. Converter
q. Ignition
r. Generator
s. Battery
t. External Battery (n.F.)

1. Cockpit Lights
2. Canopy Handle
3. Canopy Emergency Release
4. Starter

Fuel Management

The engine always draws it's fuel from the Forward Tank, the Rear Tank feeds the Forward Tank and Drop Tank feeds the Rear Tank.

The Fuel Lever in the lower forward panel opens the fuel valve.
The Fuel Content Display (lower Forward Panel) should be set to display Rear Tank Content initially, Switch to Forward Tank Content when all but the Forward Fuel Tanks are empty.

The fuel pumps (switches in right console, centre) transfer fuel among the tanks, allowing for a proper fuel circulation:

1.) When flying with internal fuel only (Forward and Rear Tank) both the Forward Tank Fuel Pump and the Rear Tank Fuel Pump are to be switched on. The Rear Tank Fuel Pump is to be switched off as soon as the Rear Tank is empty to avoid that the pump is running dry. Switch Fuel Content Display to Forward Tank.

2.) When Flying with Drop Tank (or wing tanks in the Ta152H-1 respectively) all three the Forward-, Rear-, and Drop Tank Fuel Pump are to be switched on initially. When the Drop Tank is empty, turn off the corresponding Fuel Pump and release the empty Tank (red Lever, lower forward panel). Continue as described in 1.). There is no indicator for Drop Tank Content. The Drop Tank is empty as soon as the Rear Tank Fuel Content begins to drop.

Gear Operation

The gear is driven by an electrical motor.
As the gear retracts, a pressurized air bottle is loaded which lowers the gear in the event of an electrical failure.
The electrical gear switches are located in the left console fairly at the centre in a combined instrument along with the flap switches (Figure 1).
The gear unlock mechanism (Figure 2) is located left hand in the lower forward panel, labelled "Notzug Fahrwerk".
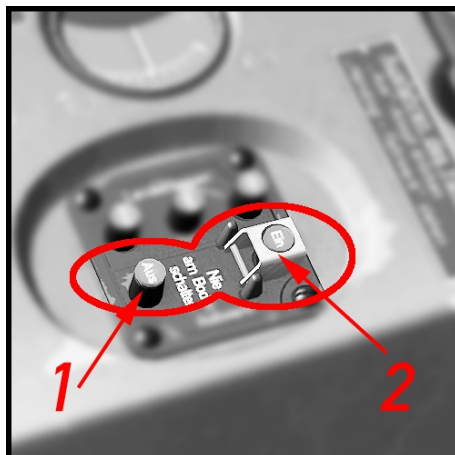Retract gear: remove safety cover from switch 2 (Figure 1) and press it.
Extend gear: press switch 1 (Figure 1) to activate the gear motor,
              next pull the lever (Figure 2) to unlock the gear.

          WARNING!

Always activate the gear motor before pulling the lever except in an emergency. The gear can no longer be retracted otherwise.

Pic.1

Pic. 2

Gear Operation Ta152H

The Ta152 gear is operated hydraulically. A lever is located in the lower left panel.

Flaps Operation Fw190D

The flaps are operated electrically by push buttons in the left console.

Button 1 (Figure 1) Landing 60°
Button 2 (Figure 1) Take-off 12°
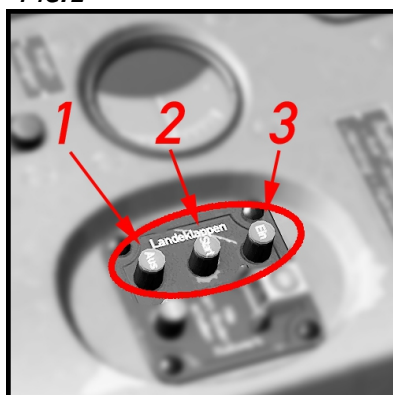Button 3 (Figure 1) Fully retracted
Status indication is provided mechanically on top of each wing (Figure 2)
and electrically by a combined gear/flap indicator (Figure 3)
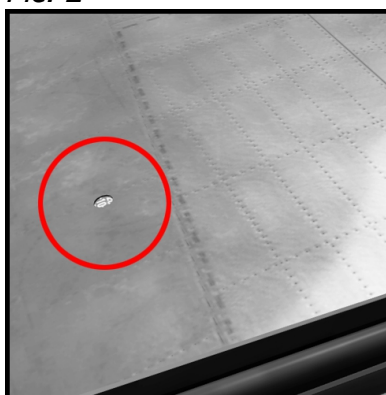   "Ein", Red light = fully retracted
    "Start" Orange light = 12° take-off position
                        "Aus" Green light = 60° landing position

Pic.1

Pic. 2

Flaps Operation Ta152H

The Ta152 flaps are hydraulically operated. A lever is located on the left cockpit wall.
    Single left click: 11° Take Off Position
    Double left click: 60° Landing Position
    Right click: Retract

Flaps Handle on the left Cockpit Wall

Canopy and Canopy Emergency Release

The canopy should be closed during the entire flight (risk of canopy blowing off).
In an emergency event the canopy can be blasted using a charge.
A red lever is located on the right cockpit wall just aft of the canopy hand wheel.
Pressing it once arms the charge,pressing it twice detonates the charge.

Ta 152 H pressurized cockpit

Cabin pressurization should be turned on beginning at an altitude of 8.000m/26.000ft.
First lock the canopy using the handle on the left side and next engage the pressurization
valve on the left side of the canopy. The cockpit pressurization gauge should saddle for a
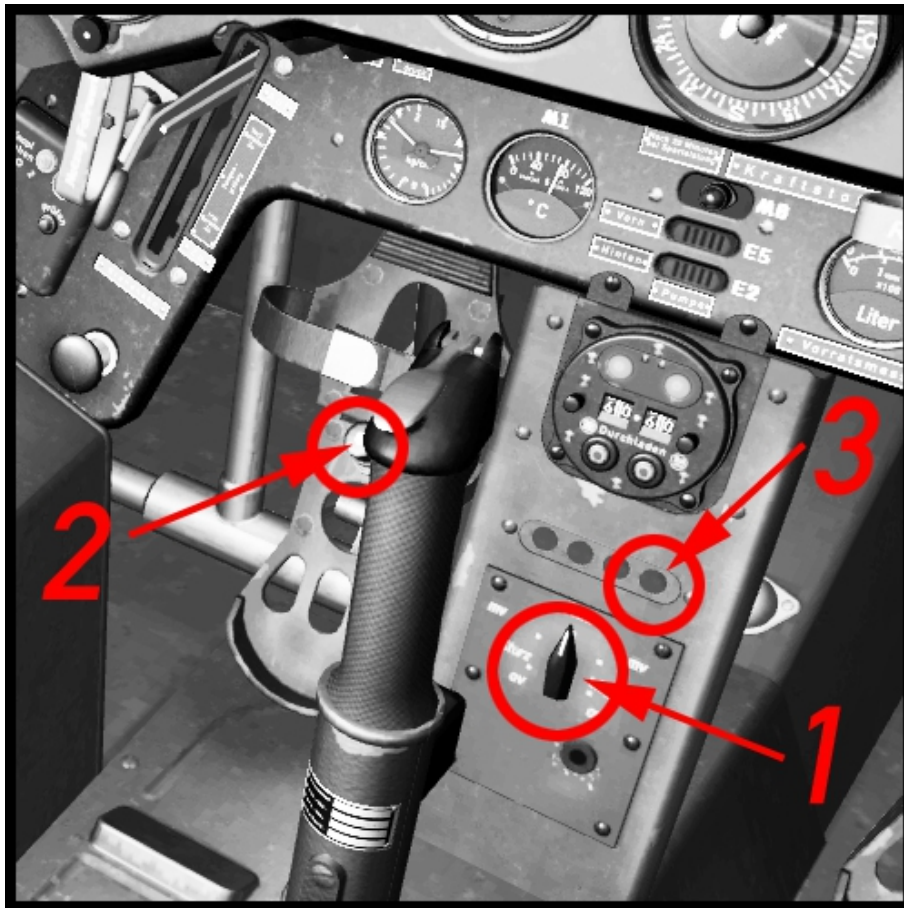value of about 0.2 atü.

Canopy Locking

Cockpit Pressure Valve

Cockpit Pressure Gauge

Using Bombs (Fw190D only)

- Add the bomb using the payload manager (shift + 3)

- Fuse the bomb using the bomb mode selector switch (Figure 4, Pos. 1).
  Any position other than the default "Aus" will do fine.
  A red light (Figure 4, Pos. 3) will glow once the bomb is successfully fused.

- Release the bomb by clicking fire button 2 on the stick (Figure 4, Pos. 2)
  Using the fire button will also trigger the FS event
  "RELEASE_DROPPABLE_OBJECTS"
  so it can be used in mission scenarios to do just that. Note Mission Creators can
  access the SC250 bomb from the SimObjects\misc folder as a droppable object.

Credits

3d-Models, Cockpit-Textures, Project-Lead
Programming..Mathias Pommerien
Exterior Textures...Alessandro Biagi
Flight Dynamics...John Cagle, Gregory Pierson
Payload Module...Jonathan Bleeker
Beta Tester..Huub Vink, Roland Berger, pilottj,
                                                                              Roger Law