Junkers Ju 52/3m

for Microsoft Flight Simulator 2020

DO NOT USE IN REAL AIRCRAFT

VARIATIONS

from 1939	Floats	Skis	Modern Cockpit

- AIRCRAFT SPECIFICATIONS

Technical Data				
Crew		3		
Passengers		15 - 17		
Empty Weight		5 720 kg	12 610 lbs	
max. Takeoff Wieght		10 500 kg	23 149 lbs	
Lenght		18,50 m	60,70 ft	
	with Floats	19,40 m	63,65 ft	
Height		4,65 m	15,26 ft	
	with Wheels	6,10 m	20,01 ft	
Wing Span		29,25 m	95,96 ft	
Wing Area		110,50 m²		
Engines:				
Propulsion	3 Radial Engines			
Engine Model	BMW 132			
	Engine Power, each:	610 – 680 PS	602 – 671 hp	
Service Ceiling		6 300 m	20 669 ft	
Range		1 200 – 1 300 km	648 – 702 nm	
Speeds:	Takeoff Speed	120 km/h	65 kts	
	max. Speed	290 km/h	157 kts	
	Cruising Speed	180 km/h	97 kts	
	Landing Speed	106 km/h	57 kts	

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- COCKPIT OVERVIEW (Ju52/3m Modern Cockpit)

1		Compass		
2		Main Panel		Pilot’s Panel
				Center Panel
				Copilot’s Panel
3		Middle Console		
4		Pedestal		
5		Seitenruderentlastung (Rudder relief)		

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6		Wobble Pump		
7		Tim and Flap Wheel		
8		Trim and Flap Indicator		

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9		Electric Panel		
10		Window toggle areas		

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- MAIN PANEL

a. PILOT'S PANEL

1		Clock		
2		Gyro Synchronization Unit		
3		Airspeed Indicator		
4		Attitude Indicator		
5		OMI Markers		
6		Altimeter		
7		Instrument Panel Lighting		
8		RMI (Radio Magnetic Indicator)		
9		HSI (Horizontal Situation Indicator)		
10		Vertical Speed Indicator		
11		Hydraulic Pressure		
12		Brake Pressure		
13		Turn Coordinator		
14		DME (Distance Measuring Equipment)		

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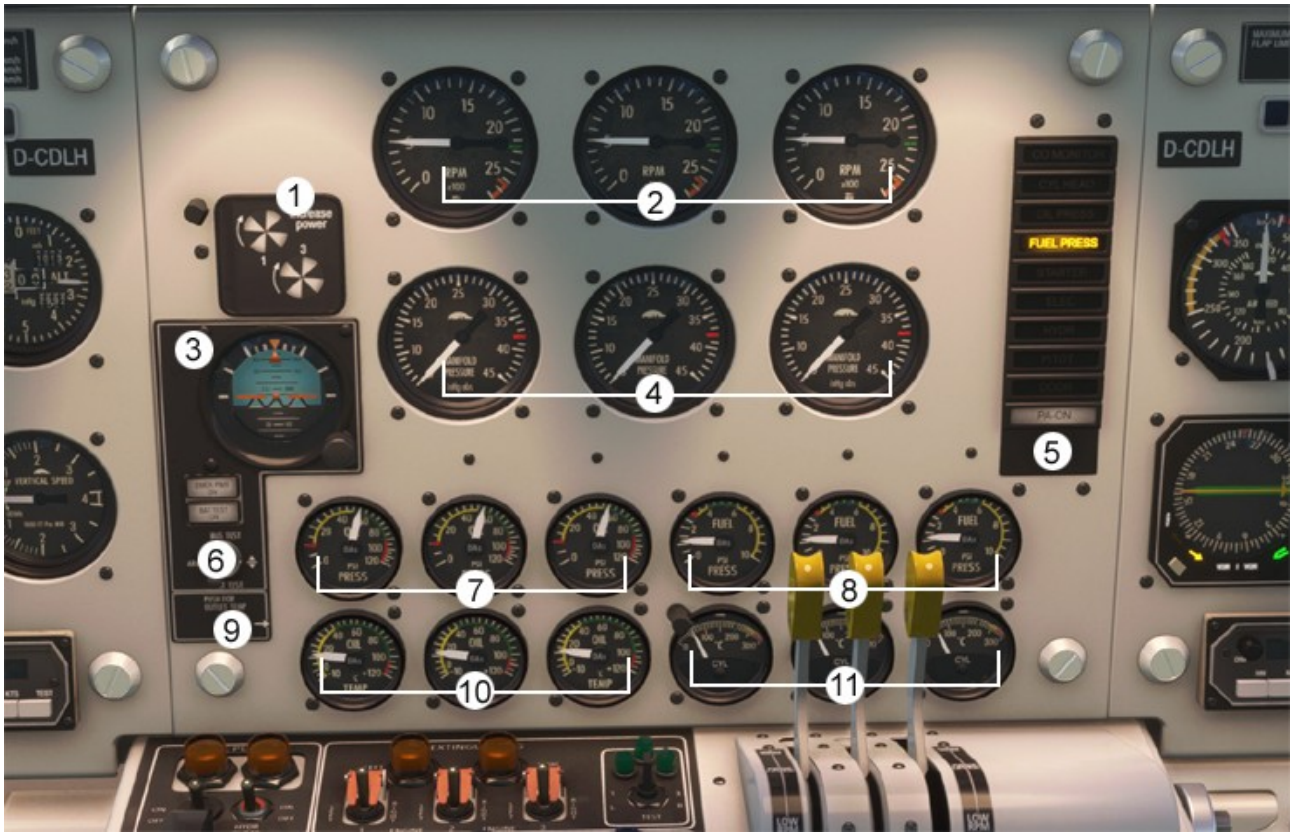
b. CENTER PANEL



1		Propeller Synchronization			
2		RPM			
3		Standby Attitude			
4		Manifold Pressure			
5		Push for Annunciator Test			
6		Battery and Emergency Test			
7		Oil Pressure			
8		Fuel Pressure			
9		Push for Oil Outlet Temperature			
10		Oil Temperature (In and Out)			
11		Cylinder Head Temperature			

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c. COPILOT’S PANEL

1		OMI Markers	14		Compartment Blowers
2		Airspeed Indicator	15		OAT (Outside Air Temperature)
3		Attitude Indicator	16		Carburetor Heat Indicator
4		Altimeter	17		EGT Indicator
5		Gyro Synchronization Unit	18		Carburetor Heat Lever
6		RMI (Radio Magnetic Indicator)			
7		HSI (Horizontal Situation Indicator)			
8		Battery Control Panel			
9		Vertical Speed Indicator			
10		Instrument Panel Lighting			
11		Clock			
12		DME (Distance Measuring Equipment)			
13		Turn Coordinator			

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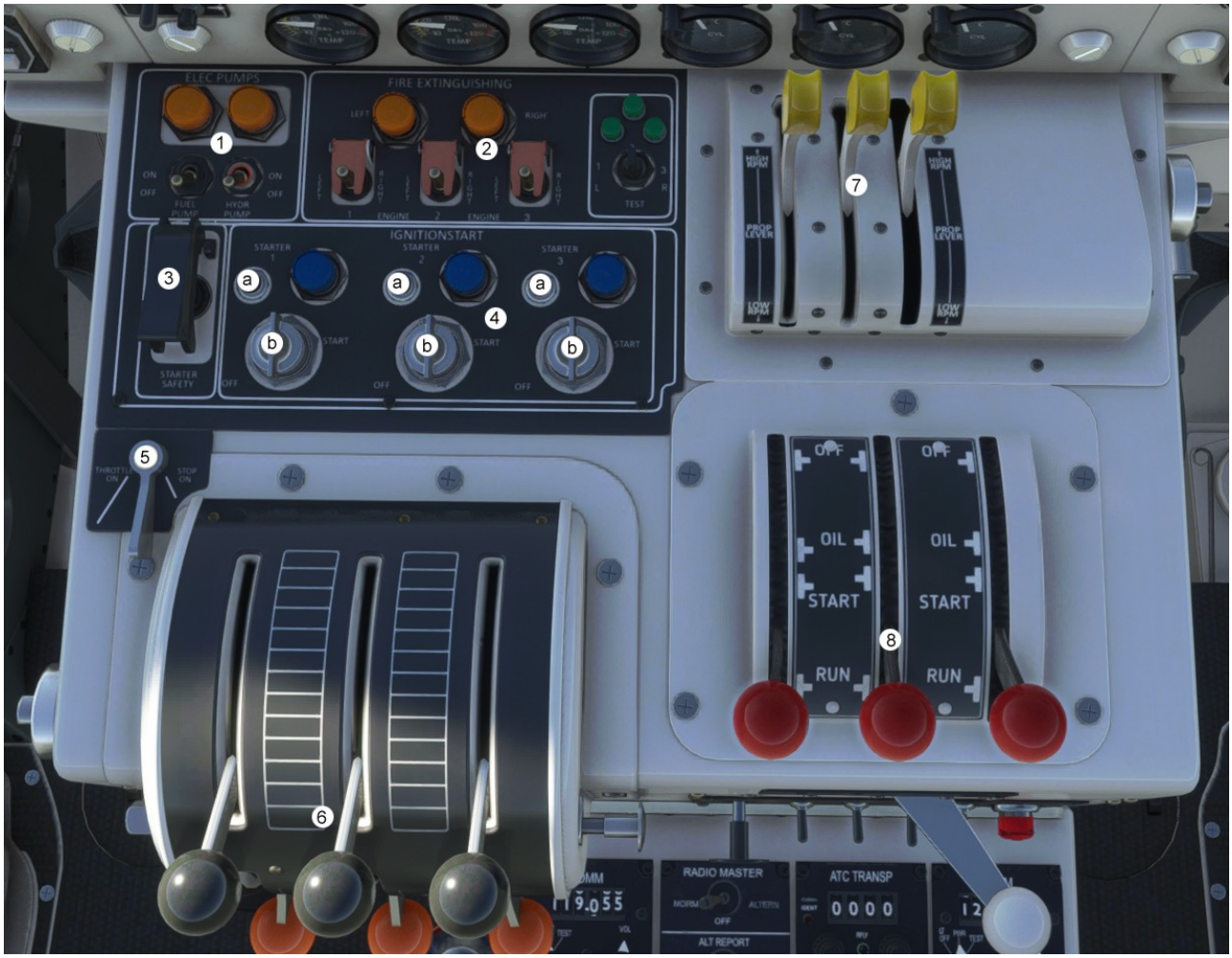
- MIDDLE CONSOLE

a. up (top side)



		Engine starting order:	Normal: 3 – 2 – 1 Left Engine (1) drives Generator 1 Middle Engine (2) drives Hydraulic Pump Right Engine (3) drives Generator 2
1		Electrical Fuel Pump	The electric fuel pump is driven by the Generators and is ONLY used by starting Engine 2. To start Engine 2 you can also use the Wobble Pump.
2		Electrical Hydraulic Pump	Available if Engine 2 is running.
3		Safety Starter	Interrupts the circuit and prevents unintentional starting.
4		Ignition Panel	a: Push for Engine Motoring
			b: Magnetos, Pull for Engine Prime
5		Normalgas	Throttle ON: Full throttle available
			Throttle Stop: reduced throttle

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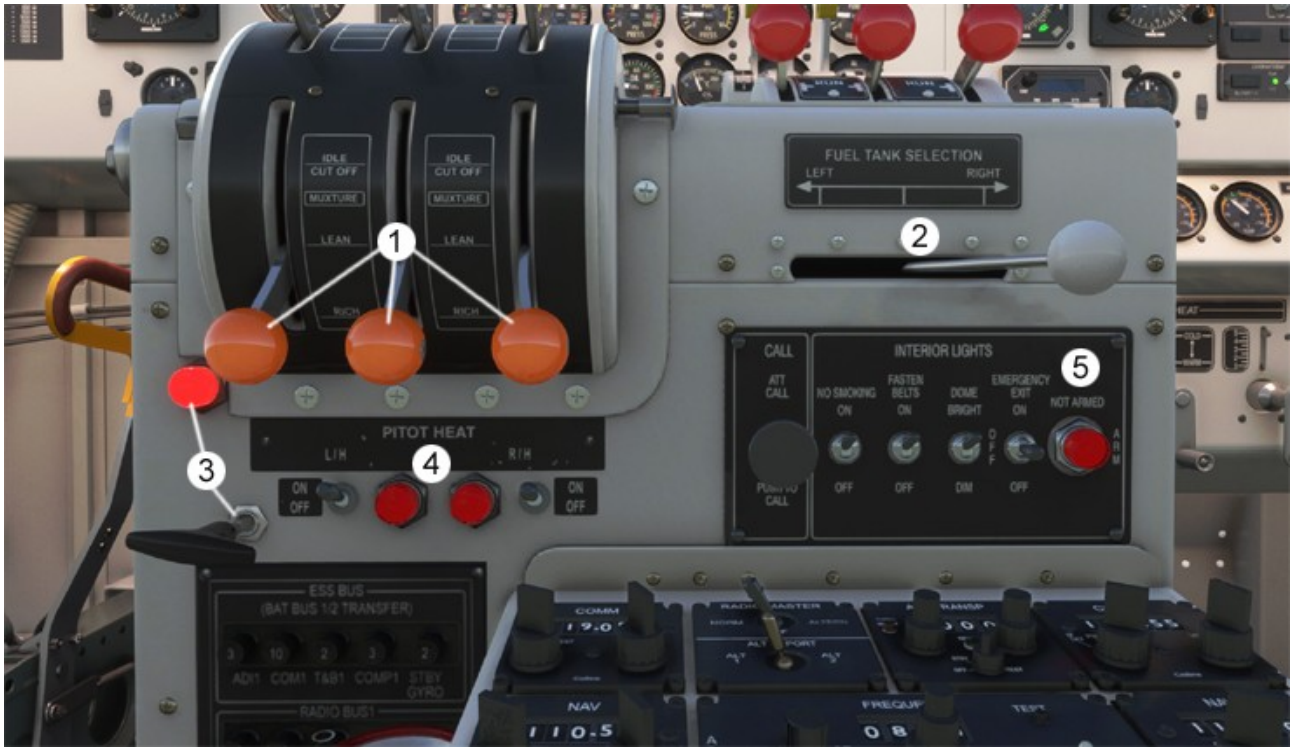
6		Throttle Lever			
7		Propeller Lever			
8		Fuel Lubricant Lever			

b. down (front side)



1		Mixture Lever			
2		Fuel Selector			
3		Parking Brake Lever and Parking Brake Light			
4		Pitot Heat			
5		Interior Lights Panel:	Attention Call		
			No Smoking		
			Fasten Belts		
			Dome Light (Cockpit lighting)		
			Emergency Exit		
			Emergency Exit Light		

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- PEDESTAL

1		Radio Master (Avionics)			
2		Alt Report			
3		Com 1 and 2 Radios			
4		Transponder			
5		Nav 1 and 2 Radios			
6		ADF Radio			
7		Exterior Lights Panel:	Landing Lights		
			Taxi Light		
			Navigation and Strobe Light		
			Anti Collision Light		
			Wing Light		
8		Radio Intercom and Emergency Panel			

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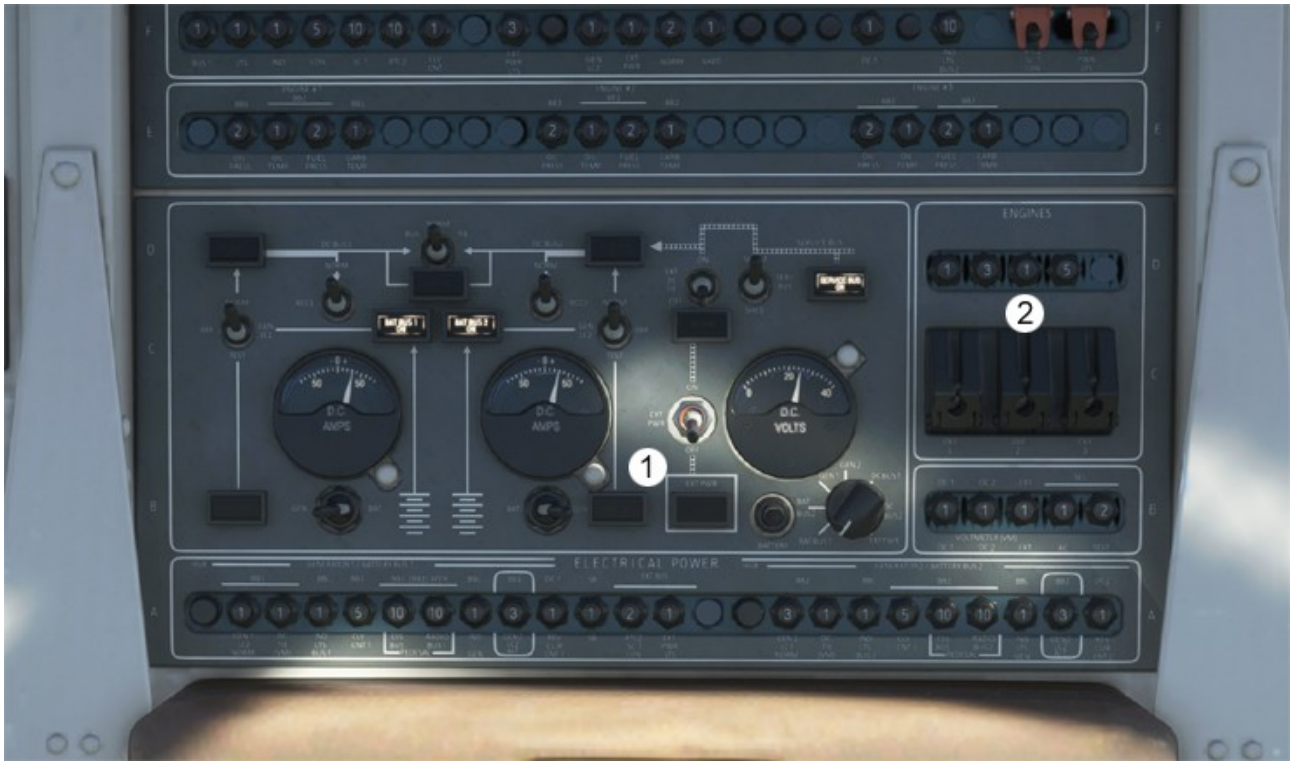
- ELECTRICAL



1		Electrical Panel		
2		Engine Master Switches		

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- COCKPIT OVERVIEW (Ju52/3m from 1939)

1		Main Panel		Pilot’s Panel
				Center Panel
				Copilot’s Panel
2		Middle Console		

3		Electric Panel		

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- MAIN PANEL

a. PILOT'S PANEL

1		Display Case	Show „Staurohr“ what means that the pitot is not on.	
2		Zielflug gekoppelt (Target flight coupled)	Show if the airplane flies left or right from a VOR station. Show if the airplane flies to or from a VOR station.	
3		Zielflug (Target flight)	Show if the airplane flies left or right from a VOR station.	
4		Course Pointer	Indicates whether the aircraft is heading directly towards the course set in the autopilot, or is to the right or left of it.	
5		Airspeed Indicator		
6		Turn Coordinator		
7		Horizontal Indicator		
8		Compass		
9		Autopilot Heading Unit	a: Heading clutch, activate heading	
			b: Headings set Lever	
10		Instrument Lighting		

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11		Altimeter	0 - 1.000 m	
12		Altimeter	0 - 10.000 m	
13		Vertical Speed Indicator		
14		Autopilot Emergency Stop	Set the autopilot OFF.	
15		Autopilot Master	Turns autopilot on or off.	
		Note: The Autopilot in the Junkers Ju52 is not like it is in a modern airplane. It is ony used in exeptional situations and can only keep a set course.		
16		Anti Ice	Structural	

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b. CENTER PANEL

1		RPM			
2		Manifold Pressure			
3		Clock			
4		Hydraulic Pressure			
5		Inlet Oil Temperature			
6		Dual Instruments:	Left Display:	Oil Pressure	
			Right Display:	Fuel Pressure	
7		Outlet Oil Temperature			
8		Cylinder Head Temperature			

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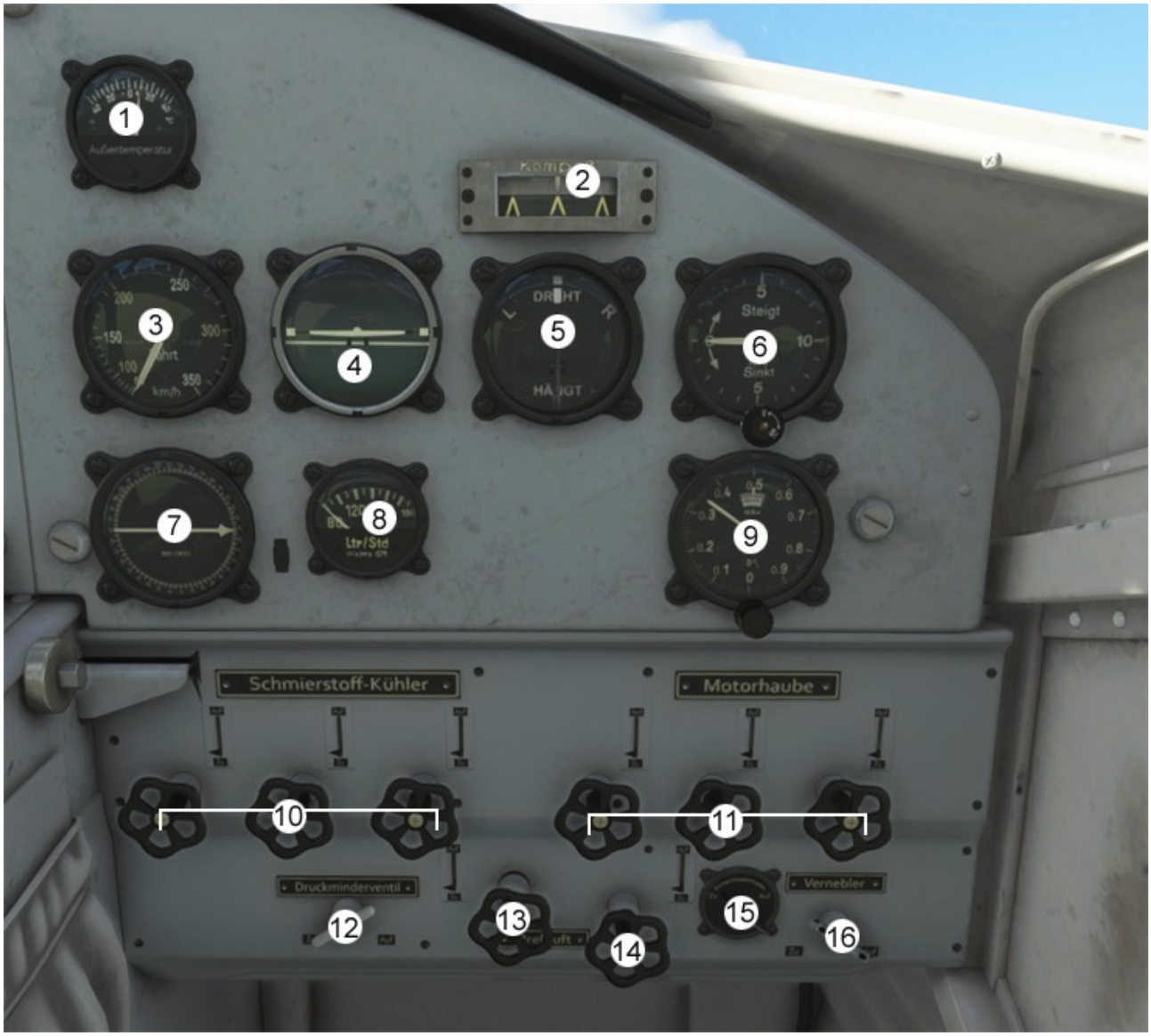
c. COPILOT’S PANEL



1		OAT (Outside Air Temperature)	14		Compressed air
2		Course Pointer	15		Injection shut-off valve
3		Airspeed Indicator	16		Nebulizer
4		Horizontal Indicator			
5		Turn Coordinator			
6		Vertical Speed Indicator			
7		Radio Compass			
8		Fuel Flow			
9		Altimeter			
10		Lubricant cooler			
11		Cowl Flaps			
12		Pressure reducing valve			
13		Compressed air			

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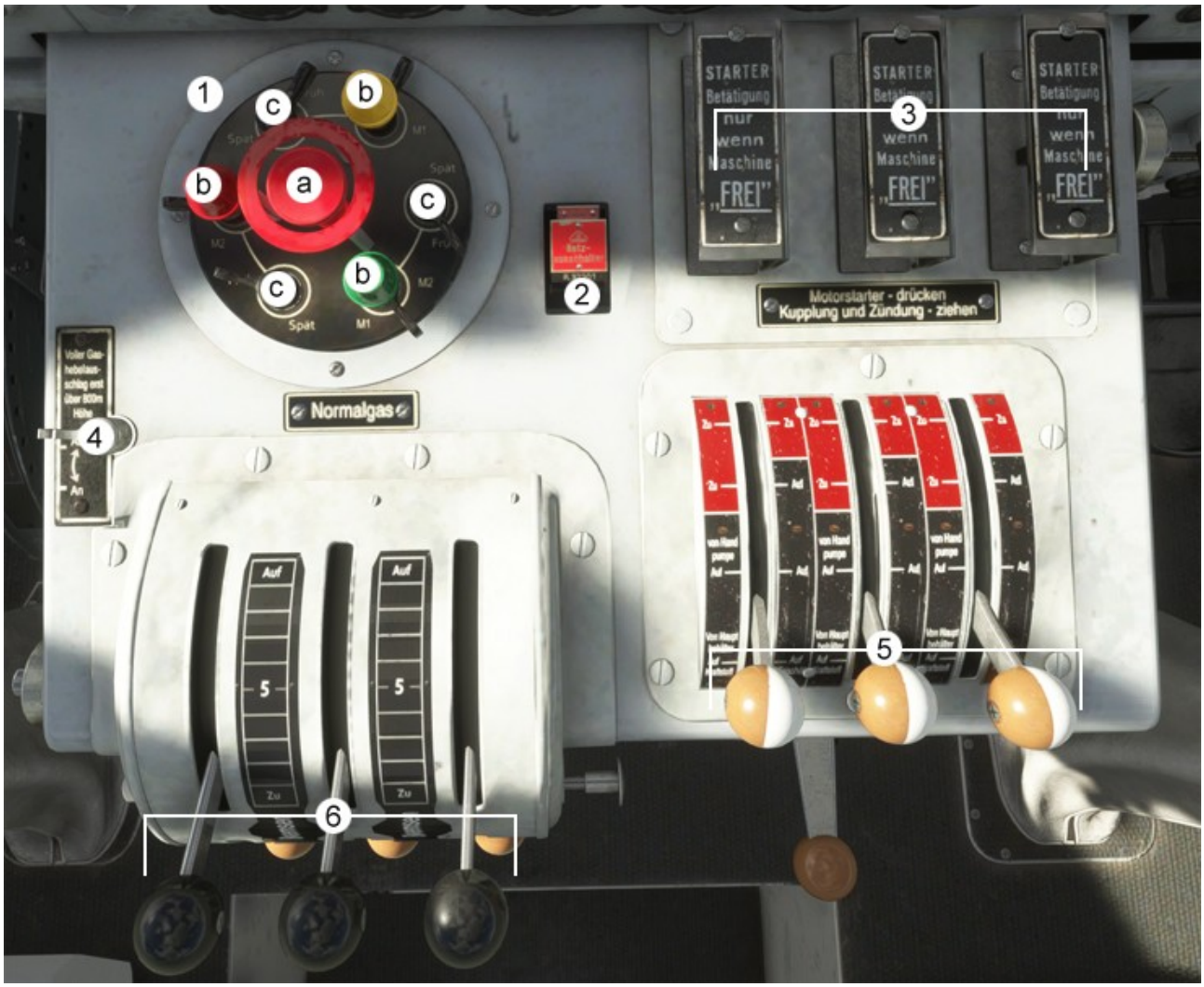
- MIDDLE CONSOLE

a. up (top side)



1		Ignition Panel:	Normal Engine Start Order: 3 – 2 – 1		
			a: Starter Master		
			b: Magneto		
			c: Ignition		
2		Master Battery			
3		Engine Starter			
4		Normalgas	Throttle ON: Full throttle available		
			Throttle Stop: reduced throttle		
5		Fuel Lubricant Lever			
6		Throttle Lever			

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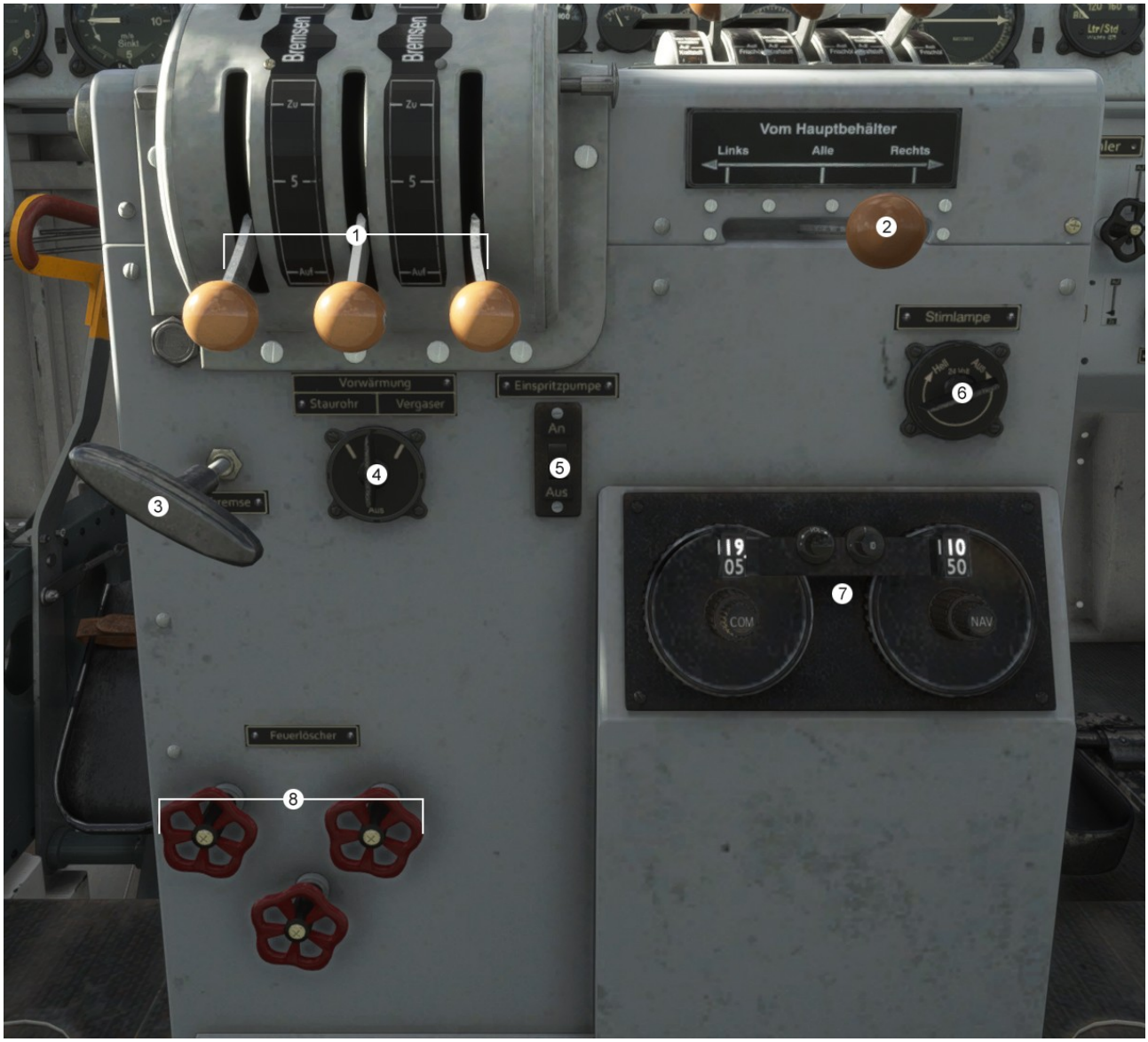
b. down (front side)



1		Mixture Lever			
2		Fuel Selector			
3		Parking Brake Lever			
4		Pitot Heat and Engine Anti Ice			
5		Fuel Pump			
6		Cockpit lighting			
7		Radios:	Com 1		
			NAV 1		
8		Fire Extinguisher			

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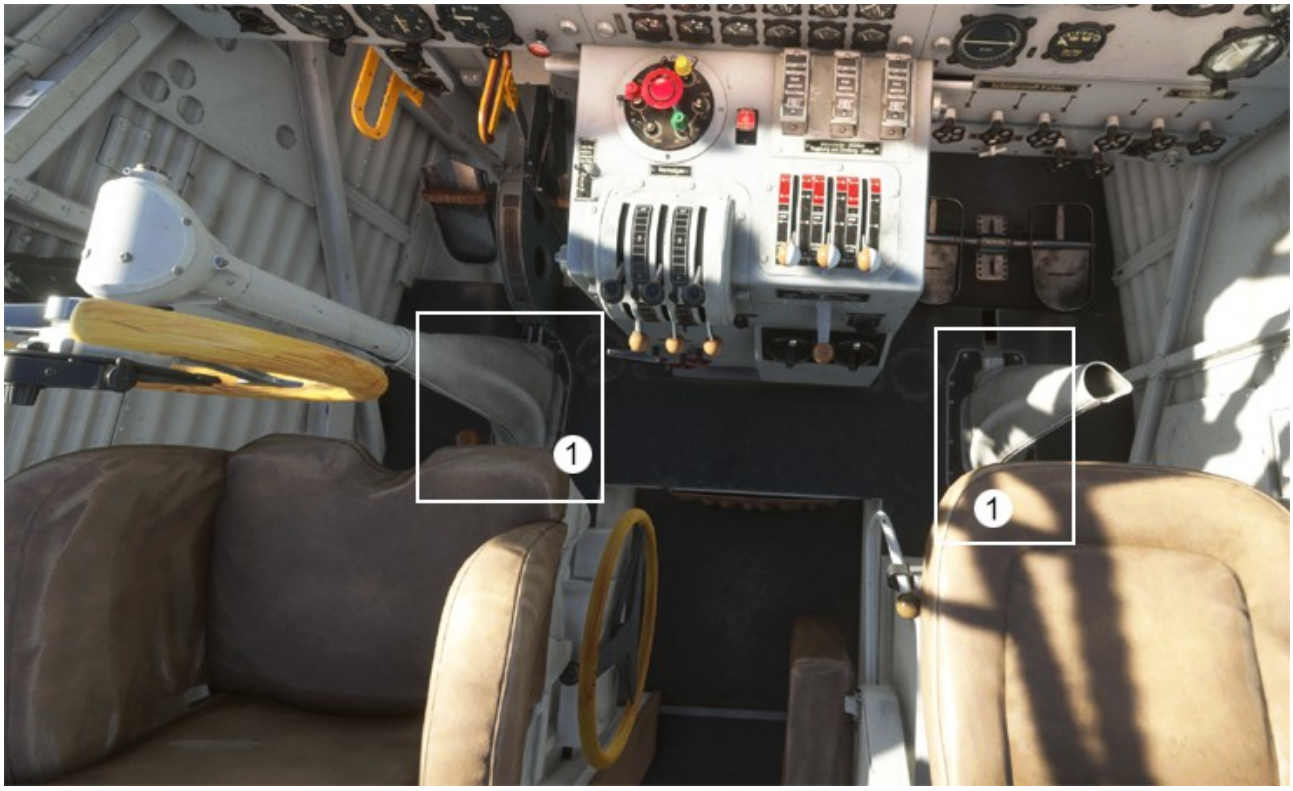
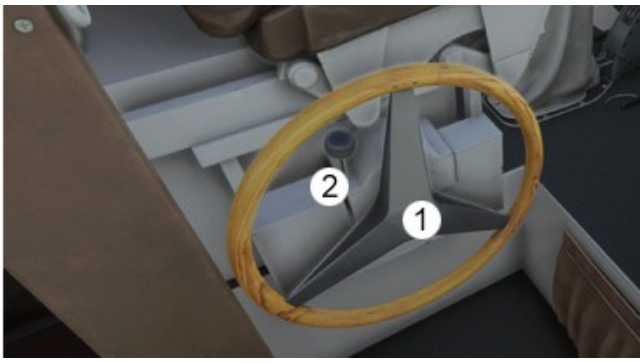
- PARTICULARITIES

- YOKE



1		Yoke Hider Area		

- TRIM and FLAP HANDLE



1		Combinated Trim and Flap adjustment wheel		
2		Lever for toggle between trimming and flap setting		
		Note: - You can not trim if the clutch (2) is coupled to flap setting. - You can not set the flaps if the clutch (2) is coupled to trim setting.		
3		Combinated Trim and Flap Indicator		

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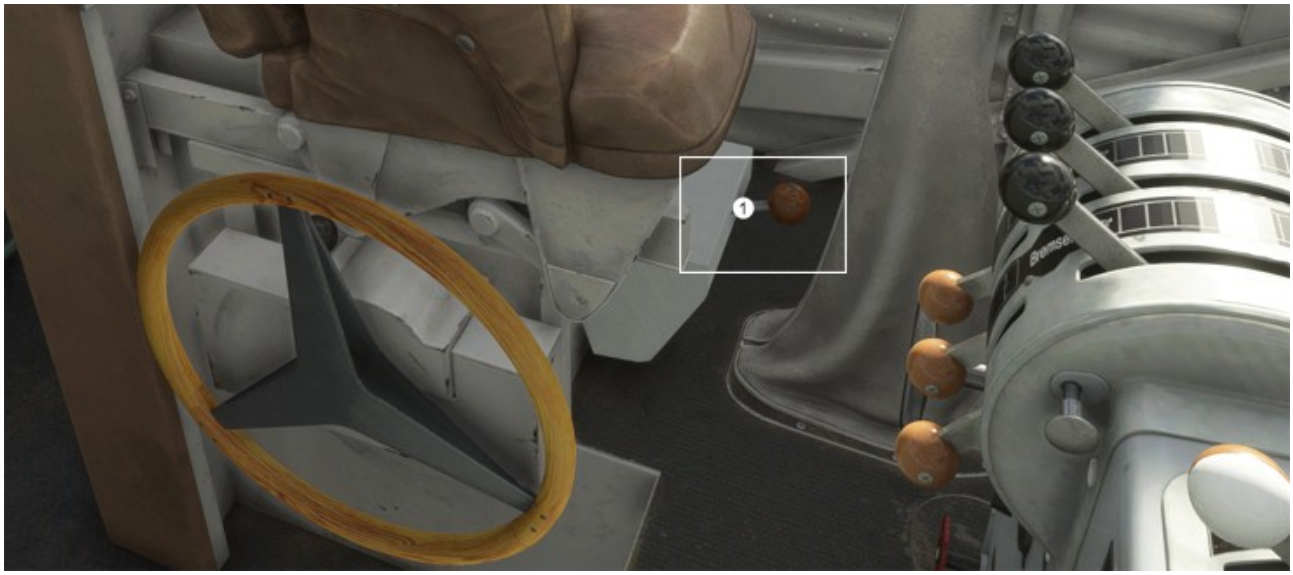
- SEITENRUDERENTLASTUNG (Rudder Relief)

		Combinated Trim and Flap adjustment wheel		
		Lever for toggle between trimming and flap setting		
		<u>Note:</u> - You can not trim if the clutch (2) is coupled to flap setting. - You can not set the flaps if the clutch (2) is coupled to trim setting.		

- TAXI and LANDING LIGHT (Ju52/3m from 1939)



1		Taxi/Landing Light Lever		

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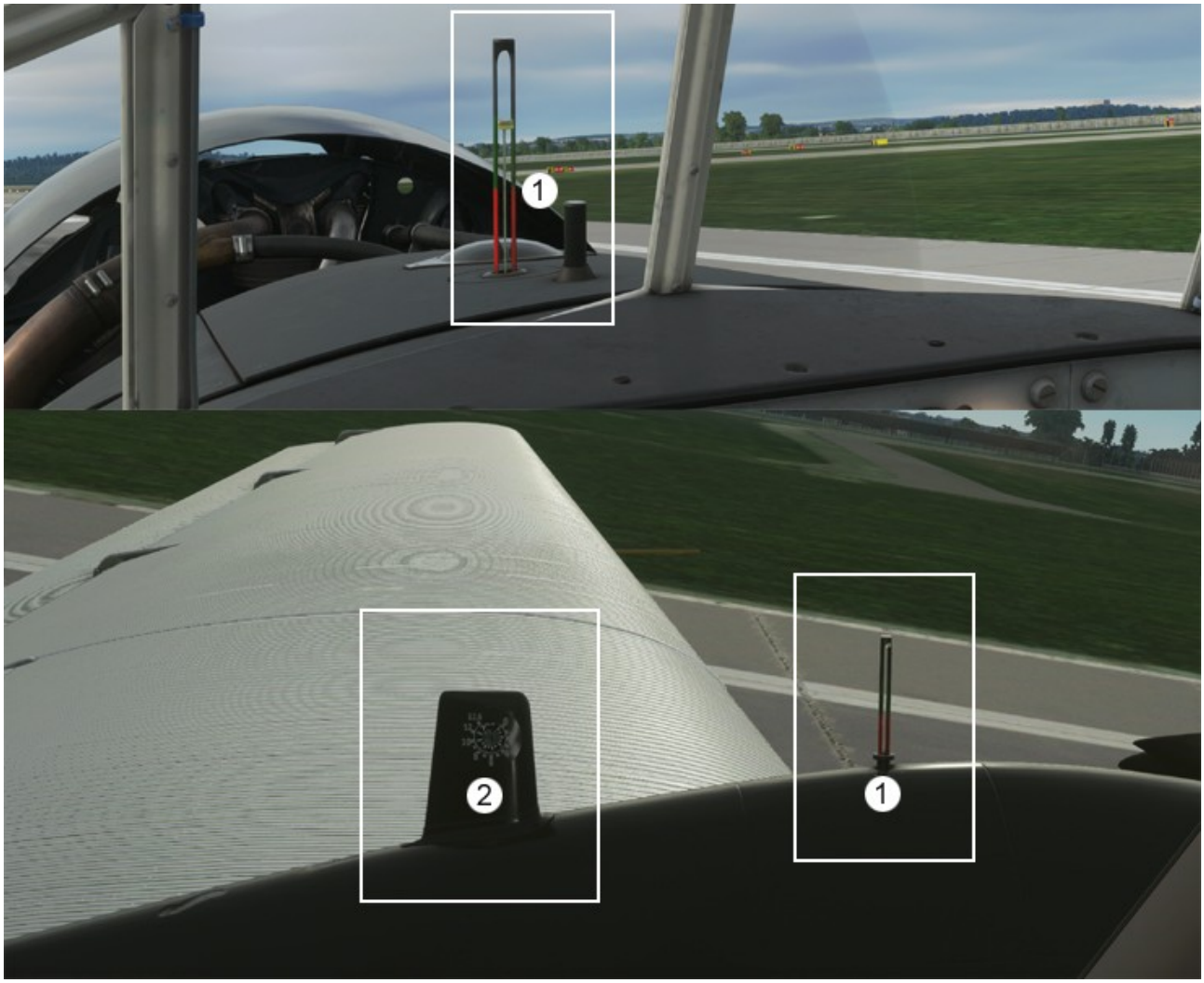
- FUEL QUANTITY and OIL QUANTITY are located outside



1		Oil Quantity	Oil Quantity Engine 1 is located on the left engine.	
			Oil Quantity Engine 2 is located on the middle engine.	
			Oil Quantity Engine 3 is located on the right engine.	
2		Fuel Quantity	Fuel Quantity left tank is located on the left engine.	
			Fuel Quantity right tank is located on the right engine.	

- ENGINE START

To start the engines open the Checklist in MSFS and follow the instructions!

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- NORMAL FLIGHT OPERATIONS

Before each flight, the horizontal stabilizer must be adjusted according to the aircraft's center of gravity.

Rudder forces and rudder effects are well coordinated and adequately dimensioned for all flight conditions, including twin-engine flight.

If the speed is slowly reduced as far as the VLande, if the landing flaps are not in position, the elevator is shaken to indicate the excessive flight condition (tip-off warning).
The difference between the horizon angles when the landing flap is not engaged and the landing flap is fully engaged (travel and landing position) is large. It is therefore important to pay attention to the speed indicator on the airspeed indicator when gliding and when hovering.

Small rudder deflections are sufficient for turning. Check the curve position using the turn indicator.
Turning with the flaps turned on is perfectly possible with a corresponding excess speed above the minimum speed.

Aerobatics is prohibited.

Control box (rear wall, Electrical 1939 version):
The switches on the control panel are only switched on when necessary (saving electricity).

Roll:

Roll if possible with the help of the motors and the rudder.
If the take-off weight is high, roll carefully and only at low speed.
Restrict cam followers.
Turning on a wheel is prohibited.
Check the landing gear brakes when rolling.

Departure (Take Off):

With a short straight ahead, the star wheel rolls into the middle position.
Flaps in take-off position:

Land transporter: 25 °

Sea transporter: 40 °

Switch on the nozzle heating (Carburetor Heat) when the air humidity is high and temperatures below 0 ° C.

For a normal take-off, push the throttle lever forward to the locking stop (Normalgas).

In an emergency, with a high take-off weight and poor space, the throttle lever may be pushed beyond the locking stop to full throttle:

Duration: a maximum of 1 minute

Speed: nmax = 2050 rpm

Compensate for turning away the aircraft with engine power.

Take-off speed: Va = 110 km / h depending on the take-off weight.

Departure route of the land transporters in calm conditions
and a flight weight of 10,000 kg:

Rolling distance: 300 m

Take off up to a height of 20 m: 580 m

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Climb:

Speed of the best climb: Va about 140 - 160 km/h

Only set the flaps back to +10 ° at a sufficient height,
as the aircraft will lose a little height due to the change in the angle of attack.

Oil inlet temperature:

lowest admissible:	40° C
desirable:	60° C
highest admissible:	80° C

Oil outlet temperature:

highest admissible:	100° C

Cruise:

Cruising speed:

Vw = 185 km/h at a height of 2 km

Vw = 200 km/h at a height of 4 km

Speed at maximum travel performance:

n = 1700 rpm

over 3.5 km altitude 1850 rpm at 19.5 ° basic setting of the propellers.

Flight duration with travel performance at an altitude of 2.5 km and 2,500 liters of fuel:
5.30 hours.

Ensure that the fuel tanks are emptied evenly.
If the fuel is withdrawn unevenly, temporarily switch to a fuller tank.

Landing:

Pay attention to the three-point landing, otherwise damage to the wheel spur.

Flap position on approach:

Land transporter: 25 °

Sea transporter: 40 ° (fully employed)

When the landing flaps are raised, the flight characteristics of the aircraft are changed
as a result of the lower flight speed:

1. The aileron forces are lower (softer).
2. The aileron effectiveness decreases somewhat.
3. With the flaps turned on, the sagging and the risk of tipping over the wing when the flight is too high is greater than with the flaps not turned on.
4. Adjusting the landing flaps is equivalent to adjusting the aircraft angle of attack by approximately 4-6°. If the pilot continues to fly towards the horizon and at the previous setting angle, there is the possibility of overturning and thus tilting over the wing.
   THEREFORE FLY BY THE AIRSPEED INDICATOR!
   Note the change in load mentioned under point 5.
5. If the horizontal stabilizer is not adjusted to the top-heavy position again, a change in weight occurs as a result of the double-wing horizontal stabilizer coupling.

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It is therefore necessary to pay particular attention to the display of the airspeed indicator during and after the adjustment of the landing flaps.
The flight speed should be at least 20 km/h greater than the touchdown speed. In the case of strong winds and gusts, or if stronger curves are intended, this speed supplement must be at least 30-40 km/h. These surcharges are also required for flaps that are not engaged.

Landing distance with fully activated landing flap, flight weight 10,000 kg and calm.
Approach speed Va ~ 110 km / h with brakes:

From touchdown to standstill 320 m

From a height of 20 m to a standstill 600 m

Roll out without braking if possible. After touching down, turn the landing flaps up to avoid damage and unnecessary pressure on the landing flaps.

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Behavior in special cases during the flight.

Failure of a motor:

If an engine fails, there is enough power to continue the flight.
The following points must be observed here:

1. Switch off fuel and ignition of the failed engine. Close the engine hood and lubricant cooler.
2. Throttle "closed".
3. Open the throttle of the healthy engines fully (full throttle), regardless of the altitude.
4. Open the engine hood and lubricant cooler of the running engines.
5. Relieve the rudder (Seitenruderentlastung).
6. Set the auxiliary wing to 10 °.
7. Travel reduction depending on the flight weight Va = 160 - 140 km/h.
   Avoid steep turns at 130 km/h.

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