

IL-2 FB+AEP+PF cockpit reference guide

by neural_dream

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based on the online reference guide of
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[http : //www.partizanska – eskadrila.com/reference/cockpit.htm](http://www.partizanska-eskadrila.com/reference/cockpit.htm)



Germany

2.1 Messerschmitt BF 109E “Emil” (‘40-41)



1. Clock
2. Altimeter
3. Repeater Compass
4. Airspeed indicator
5. Turn and Bank indicator
6. Engine magnetos position
7. Throttle
8. Manifold pressure gauge
9. Tachometer
10. Propeller pitch indicator
11. Fuel and oil pressure gauge
12. Undercarriage position indicator:
green - down, red - up, no light - in transition
13. Low fuel warning light
14. Fuel gauge
15. Oil temperature gauge
16. Coolant temperature gauge

Some useful info on the BF109E

- Armament: nose - 2x7.92mm MG17 (1000rpg/66sec), wings - 2x20mm MG FF/M(60rpg/7sec)

2.2 Messerschmitt BF 109F “Friedrich” (‘41)



1. Left Machine Gun Ammo
2. Cannon Ammo
3. Right Machine Gun Ammo
4. Clock
5. Engine magnetos position
6. Altimeter
7. Repeater Compass
8. Manifold pressure gauge
9. Undercarriage position indicator:
green - down, red - up, no light - in transition
10. Airspeed indicator
11. Turn and Bank indicator
12. Tachometer
13. Propeller pitch indicator
14. Coolant temperature gauge
15. Low fuel warning light gauge
16. Fuel gauge
17. Fuel and oil pressure gauge
18. Throttle

Some useful info on the BF109F

- Armament:
BF109F-2: nose - 2x7.92mm MG17 (500rpg/33sec), engine - 1x15mm MG151 (200rpg/17sec)
BF109F-4: nose - 2x7.92mm MG17 (500rpg/33sec), engine - 1x20mm MG151/20 (200rpg/16sec)

2.3 Messerschmitt BF 109G "Gustav" ('42-44)



1. Left Machine Gun Ammo
2. Cannon Ammo
3. Right Machine Gun Ammo
4. Clock
5. Engine magnetos position
6. Repeater Compass
7. Artificial Horizon / Turn and Bank indicator
8. Manifold pressure gauge
9. Undercarriage position indicator:
green - down, red - up, no light - in transition
10. Altimeter
11. Airspeed indicator
12. Tachometer
13. Propeller pitch indicator
14. Coolant temperature gauge
15. Low fuel warning light
16. Fuel gauge
17. Fuel and oil pressure indicator
18. Throttle

2.4 Messerschmitt BF 109K-4 "Kurfürst" ('44)



1. Left Machine Gun Ammo
2. Right Machine Gun Ammo
3. Clock
4. Airspeed indicator
5. Artificial Horizon / Turn and Bank indicator
6. Altimeter
7. Repeater compass
8. Undercarriage position indicator:
green - down, red - up, no light - in transition
9. Throttle
10. Variometer
11. Fuel and oil pressure gauge
12. Coolant temperature gauge
13. Tachometer
14. Oil temperature gauge
15. Propeller pitch indicator
16. Manifold pressure gauge
17. Fuel gauge
18. Low fuel warning light

Some useful info on the K-4

- Mixture and supercharger generally do not need human intervention; they are automatic.
- Max speed before disintegration is around 900km/h and fastest climb around 280km/h.
- The MW50 boost should be turned on/off only on low RPMs (many switch it on before take-off). The fluid starts working only over 100% power and will last around 26mins.
- In overheat condition the engine gets damaged after around 5mins.
- The K-4 is particularly difficult to control and change direction while in steep high-speed dives. However, you can set combat flaps at any speed without flap damage.
- Like most BF109s the K-4 is a very unstable gun platform at low speeds.
- Armament: nose - 2x13mm MG131 (300rpg/21sec), engine - 1x30mm MK108 (65rpg/6sec), wings gunpods - 2x20mm MG151/20 (135rpg/11sec), wings gunpods - 2x30mm MK108 (60rpg/6sec).

2.5 Focke-Wulf FW 190A-4,5,6 ('42,'43)



1. Warning light for left MG warning light
2. Warning light for right MG warning light
3. Left Machine Gun Ammo
4. Left Inboard Cannon Ammo
5. Right Inboard Cannon Ammo
6. Right Machine Gun Ammo
7. Airspeed indicator
8. Artificial Horizon / Turn and Bank indicator
9. Variometer
10. Repeater Compass
11. Manifold pressure gauge
12. Altimeter
13. Fuel and oil pressure gauge
14. Oil temperature gauge
15. Fuel gauge
16. Propeller pitch indicator
17. Low fuel warning light
18. Tachometer
19. Throttle
20. Engine magnetos position
21. Undercarriage position indicator:
green - down, red - up, no light - in transition
22. Flaps position indicator:
red - up, red (middle) - combat and take-off, green - landing
23. Elevator trim indicator
24. External Ordnance status (only on the A-5):
two inner lights - belly bombs/tanks,
two outer lights - wing bombs/tanks
25. Clock

2.6 Focke-Wulf FW 190A-8,9 ('44)



1. Left Machine Gun Ammo
2. Left Inboard Cannon Ammo
3. Right Inboard Cannon Ammo
4. Right Machine Gun Ammo
5. Airspeed indicator
6. Artificial Horizon / Turn and Bank indicator
7. Altimeter
8. Fuel and Oil pressure gauge
9. Oil temperature gauge
10. Throttle lever
11. Engine magnetos position
12. Undercarriage position indicator:
green - down, red - up, no light - in transition
13. Elevator trim indicator
14. Variometer
15. Repeater Compass
16. Manifold pressure gauge
17. Fuel gauge
18. Propeller pitch indicator
19. Low Fuel warning light
20. Tachometer
21. External Ordnance status light
22. Clock

Some useful info on the FW190A-8,9

- All FW190s have automatic propeller pitch and mixture control.
- The FW190 has excellent armament and armor. FW190A-8,9 Armament: nose - 2x13mm MG131 (400rpg/28sec), inner wings - 2x20mm MG151/20E (250rpg/22sec), outer wings - 2x20mm MG151/20E (125rpg/10sec), gunpods - 2x20mm dual MG151/20E (145rpg/12sec), gunpods - 2x30mm MK103 (35rpg/5sec), gunpods - 2x30mm MK108 (35rpg/4sec).
- It stalls easily at low speeds and generally underperforms at low altitudes.
- The FW190s are impressive power divers, similar to the P-47s.

2.7 Junkers Ju 87B-2 "Stuka" ('41)



1. Supercharger lever:
rear position - stage 1, front - stage 2
2. Contact Altimeter
3. Repeater Compass
4. Airspeed indicator
5. Tachometer
6. Clock
7. Altimeter
8. Turn and Bank indicator
9. Variometer
10. Manifold pressure gauge
11. Magnetic Compass
12. Fuel gauge
13. Fuel and Oil pressure gauge
14. Oil temperature gauge
15. Coolant temperature gauge
16. Propeller pitch lever
17. Throttle
18. Dive brakes lever:
rear position - deployed, front - stowed
19. Flaps lever

2.8 Junkers Ju 87D-3,D-5,G-1 "Stuka" ('42-43)



1. Supercharger lever:
rear position - stage 1, front - stage 2
2. Clock
3. Altimeter
4. Repeater Compass
5. Airspeed indicator
6. Engine Tachometer
7. Ammo left and right Machine Guns
(cannons in G-1)
8. Magnetic Compass
9. (only in D-3) Contact Altimeter
10. Turn and Bank indicator
11. Variometer
12. Manifold pressure gauge
13. Fuel gauge
14. Fuel and Oil pressure gauge
15. Oil temperature gauge
16. Coolant temperature gauge
17. Propeller pitch lever
18. Throttle
19. (only in D-3) Dive brakes lever:
rear position - deployed, front - stowed
20. Flaps lever

Some useful info on the Ju 87

- The rear gunner of a Stuka can be surprisingly lethal against less experienced fighter pilots
- The Ju 87-G1 is not actually a Stuka, since it does not carry bombs, but two very strong cannons (2x37mm) for tank-hunting.

2.9 Messerschmitt Me 262 ('44,'45)



1. Airspeed indicator
2. Artificial Horizon
3. Variometer
4. Altimeter
5. Repeater Compass
6. Clock
7. Left upper cannon ammo (not present on a1/U4)
8. Right upper cannon ammo (not present on a1/U4)
9. Cannon warning lights (not present on a1/U4)
10. Undercarriage position indicator:
green - down, red - up, no light - in transition
11. Flaps contactor switch
12. Gear contactor switch
13. Left engine throttle
14. Right engine throttle
15. Elevator trim lever
16. Left engine Tachometer
17. Right engine Tachometer
18. Left engine gas pressure
19. Left engine gas temperature
20. Right engine gas temperature
21. Right engine gas pressure
22. Left engine fuel pressure
23. Left engine oil pressure
24. Right engine oil pressure
25. Right engine fuel pressure
26. Low fuel warning light
27. Front fuel tank gauge
28. Rear fuel tank gauge
29. Low fuel warning light

Some useful info on the Me262

- Be gentle with the throttle to avoid surprises. The same stands for all jets.
- Armament: Me262-1a: upper nose - 2x30mm Mk108 (100rpg/10sec), lower nose - 2x30mm Mk108 (80rpg/8sec).
Me262-1a/U4: nose - 1x50mm Mk214A (28rpg/11sec). Me262-2a: nose - 2x30mm Mk108 (100rpg/10sec).

2.10 Horten Go 229 ('45)



1. Variometer
2. Artificial Horizon / Turn and Bank indicator
3. Altimeter
4. Repeater Compass
5. Undercarriage position indicator:
green - down, red - up, no light - in transition
6. Flaps position indicator:
upper red light (Ein) - raised and combat flaps
middle red light (Start) - take-off flaps
lower green light (Aus) - landing flaps
no light - in transition
7. Airspeed indicator
8. Left tank fuel gauge
9. Right tank fuel gauge
10. Left engine oil pressure
11. Left engine gas temperature
12. Left engine tachometer
13. Right engine tachometer
14. Right engine gas temperature
15. Right engine oil pressure
16. Outside temperature
17. Gear lever
18. Flaps lever
19. Left engine throttle
20. Right engine throttle
21. Fuel pressure

Some useful info on the Go229

- Armament: wings - 2x30mm Mk103 (120rpg/17sec).

4 Japan

4.1 Mitsubishi A6M2,3,5,5a,5b “Zero” or “Zeke” (‘40-‘43)



1. Artificial Horizon
2. Turn and Bank indicator
3. Mixture indicator (on A6M5, A6M5a and A6M5b)
4. Clock
5. Airspeed indicator
6. Magnetic Compass
7. Variometer
8. Fuel and oil pressure indicator
9. Tachometer
10. Repeater Compass
11. Engine magnetos position
12. Altimeter
13. Manifold pressure gauge
14. Oil temperature
15. Engine temperature gauge
16. Throttle
17. Engine mixture: rear - leaner mixture, front - richer
18. Propeller pitch
19. Supercharger lever (on A6M3, A6M5, A6M5a and A6M5b): rear position - stage 1, front - stage 2
20. Fuel gauge
21. Fuel gauge

Some useful info on the Zero

- Zeros have incredible manoeuvrability but lack armour plating and self-sealing fuel tanks, which make them extremely vulnerable to enemy fire.
- Armament:
A6M2: nose - 2x7.7mm Type97 MG (1000rpg/66sec), wings - 2x20mm Type99cannon(60rpg/7sec)
A6M5a: nose - 2x7.7mm Type97 MG (1000rpg/66sec), wings - 2x20mm Type99cannon(125rpg/14sec)

4.2 Mitsubishi A6M5c,7-62,7-63 (‘44,‘45)



1. Water-methanol tank gauge (on A6M5c and A6M7-62)
2. Artificial Horizon
3. Turn and Bank indicator
4. Mixture indicator
5. Clock
6. Airspeed indicator
7. Magnetic Compass
8. Variometer
9. Fuel and oil pressure indicator
10. Tachometer
11. Repeater Compass
12. Engine magnetos position
13. Altimeter
14. Manifold pressure gauge
15. Oil temperature
16. Engine temperature gauge
17. Throttle
18. Engine mixture: rear - leaner mixture, front - richer
19. Propeller pitch
20. Supercharger lever: rear - stage 1, front - stage 2
21. Fuel gauge
22. Fuel gauge

4.3 Nakajima Ki-43-Ia,Ib,Ic Hayabusa, "Oscar" ('41)



1. Clock
2. Turn and Bank indicator
3. Variometer
4. Manifold pressure gauge
5. Magnetic Compass
6. Altimeter
7. Tachometer
8. Undercarriage position indicator:
green - up, red - down, no light - in transition
9. Oil pressure gauge
10. Oil temperature gauge
11. Throttle
12. Propeller pitch lever
13. Mixture lever
14. Cylinder head temperature gauge
15. Exhaust temperature gauge

4.4 Kawasaki Ki-61-I Ko,Otsu,Hien "Tony" ('42-'44)



1. Turn and Bank indicator
2. Variometer
3. Airspeed indicator
4. Magnetic Compass
5. Altimeter
6. Clock
7. Engine Coolant temperature gauge
8. Oil temperature gauge
9. Oil pressure gauge
10. Outside temperature gauge
11. Manifold pressure gauge
12. Exhaust temperature gauge
13. Tachometer
14. Throttle
15. Propeller pitch
16. External Weapons indicator light
17. Radiator lever
18. Flaps lever
19. Flaps position indicator
20. Radiator position indicator
21. Undercarriage position indicator:
green - up, red - down, no light - in transition
22. Fuel gauge

4.5 Nakajima Ki-84-Ib,Ic Hayate “Frank” (‘44, ‘45)



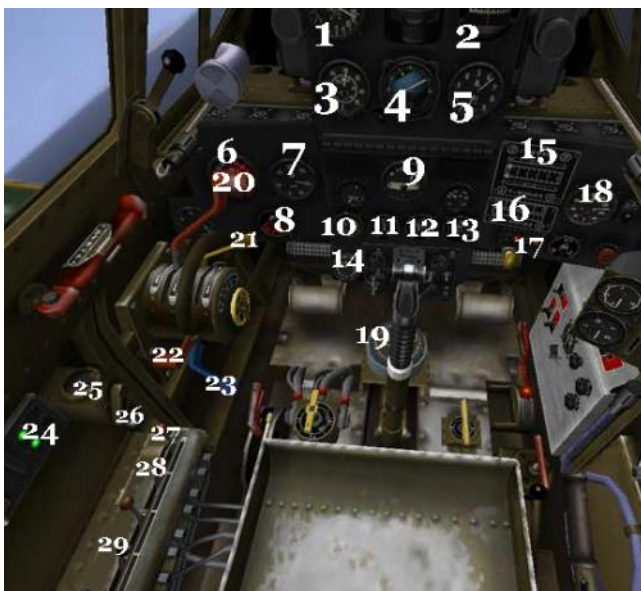
1. Airspeed indicator
2. Artificial Horizon
3. Variometer
4. Altimeter
5. Magnetic compass
6. Turn and Bank indicator
7. Tachometer
8. Clock
9. Manifold pressure gauge
10. Cylinder head temperature
11. Exhaust temperature
12. Oil temperature
13. Engine magnetos position
14. Undercarriage position indicator:
green - down, red -up, no light - in transition
15. Fuel gauge with low fuel warning light inside
16. Throttle
17. Propeler pitch lever
18. Engine mixture: rear - leaner mixture, front - richer
19. Gear lever
20. Flaps lever
21. Radiator lever

Some useful info on the Ki-84

- Armament:

Ki-84Ia: nose - 2x12.7mm Ho103 MG (350rpg/24sec), wings - 2x20mm Ho5 cannon (150rpg/10sec). Ki-84Ib: nose - 2x20mm Ho5 cannon (150rpg/11sec), wings - 2x20mm Ho5 cannon (150rpg/10sec). Ki-84Ic: nose - 2x20mm Ho5 cannon (150rpg/11sec), wings - 2x30mm Ho105 cannon (65rpg/6sec).

4.6 Kawasaki Ki-100-I Ko (‘45)



1. Variometer
2. Magnetic Compass
3. Airspeed indicator
4. Artificial Horizon
5. Altimeter
6. Manifold pressure gauge
7. Tachometer
8. Engine magnetos position
9. Turn and Bank indicator
10. Oil pressure gauge
11. Oil temperature gauge
12. Cylinder head temperature gauge
13. Exhaust temperature gauge
14. Clock
15. Flaps position indicator
16. Radiator position indicator
17. Undercarriage position indicator:
green - down, red - up, no light - in transition
18. Fuel gauge
19. Magnetic Compass
20. Throttle
21. Propeller pitch
22. Mixture lever
23. Boost lever
24. External weapons indicator light
25. Elevator trim indicator
26. Elevator trim
27. Flaps lever
28. Radiator lever
29. Gear lever

6.3 FIAT CR42 (Italy, '38)



1. Left Machine Gun Ammo
2. Manifold pressure gauge
3. Compass
4. Turn and Bank indicator
5. Altimeter
6. Fuel pressure gauge
7. Oil pressure gauge
8. Tachometer
9. Airspeed indicator
10. Variometer
11. Right Machine Gun Ammo
12. Engine magnetos position
13. Oil temperature gauge
14. Engine mixture:
rear position - leaner mixture, front - richer
15. Throttle
16. Propeller pitch lever
17. Radiator lever
18. Fuel gauge
19. Clock

Some useful info on the CR42

- Armament: nose - 2x12.7mm Breda SAFAT (400rpg/37sec).

6.4 FIAT G.50 (Italy, '38)



1. Fuel pressure gauge
2. Oil pressure gauge
3. Tachometer
4. Altimeter
5. Airspeed indicator
6. Flaps lever
7. Gear lever
8. Manifold pressure gauge
9. Airspeed indicator
10. Turn and Bank indicator
11. Variometer
12. Oil temperature gauge
13. Cylinder head temperature
14. Left Machine Gun Ammo
15. Compass
16. Right Machine Gun Ammo
17. Undercarriage position indicator:
green - down, red - up, no light - in transition
18. Propeller pitch lever
19. Throttle
20. Mixture lever: rear - leaner mixture, front - richer

Some useful info on the G.50

- Armament: nose - 2x12.7mm Breda SAFAT (300rpg/28sec).

Instruments

Airspeed indicator The *speed*. In kilometers per hour or miles per hour, where 1 mile = 1.61 km (310mph = 500kph approx.).

Altimeter Tells the *altitude* by sensing air pressure. 1 km = 3280 feet (3km = 10000ft approx.).

Artificial Horizon Also known as Attitude Indicator(AI). Shows the *angle of the nose and the wings* of the plane.

Repeater Compass Gives the *direction of the next waypoint*. When that is reached it automatically points towards the next one.

Magnetic Compass A typical *compass*.

Turn and Bank indicator Shows both the *rate and coordination of the turn*. The ball shows the actual direction.

Variometer Shows the *rate of descent or climb*. Also known as Rate-of-Climb indicator, Vertical Speed indicator (VSI), or Vertical Velocity indicator (VVI)). It can be in feet per minute (ft/min), knots (nautical miles per hour) or metres per second (m/s) depending on the country or type of aircraft.

Tachometer Shows the *RPMs of the engine*.

Coolant temperature When over a marked limit the engine needs cooling.

Oil temperature Shows when the engine is overheating.

Oil pressure Strange behaviour of the oil pressure indicates a damaged engine.

Fuel Gauge When you run out of *fuel* you 'd better have enough altitude to glide to the nearest airfield :).

Undercarriage position indicator Shows whether your *gears* are up, down or in transition.

Thx

For most of the cockpits' instruments i consulted [http : //www.partizanska – eskadrila.com/reference/cockpit.htm](http://www.partizanska-eskadrila.com/reference/cockpit.htm) of partizanska eskadrila.