

IL-2 FB+AEP+PF cockpit reference guide

by neural_dream

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based on the online reference guide of
Ante Turkovic "PE_Mosor", Partizanska Eskadrila

<http://www.partizanska-eskadrila.com/reference/cockpit.htm>



1 USSR

1.1 Polikarpov I-153 “Chaika” (‘39)



1. Airspeed indicator
2. Magnetic Compass
3. Tachometer
4. Altimeter
5. Turn and Bank indicator
6. Variometer
7. Engine magnetos position
8. Oil temp. (upper half), oil pres. (left), fuel pres. (right)
9. Clock
10. Cylinder head temperature gauge
11. Manifold pressure
12. Supercharger lever: rear - stage 1, front - stage 2
13. Engine mixture: rear - leaner mixture, front - richer
14. Throttle
15. Propeller pitch knob

Some useful info on the I-153

- Consider switching the supercharger to stage 2 over 1500m and generally avoid high altitudes (>2500m).
- Armament:
I-153M62: upper nose - 2x7.62mm ShKAS(left 700rpg/27 sec, right 750rpg/29sec), lower nose - 2x7.62mm ShKAS (left 500rpg/19sec, right 520rpg/19sec).
I-153P: nose 2x20mm ShVAK (left 200rpg/17sec, right 250rpg/21sec).

1.2 Polikarpov I-16 (‘39)



1. Left gear position: green - down, red - up, no light - in transition
2. Right gear position: green - down, red - up, no light - in transition
3. Tachometer
4. Airspeed indicator
5. Magnetic Compass
6. Altimeter
7. Oil pressure gauge
8. Manifold pressure gauge
9. Turn and Bank indicator
10. Variometer
11. Cylinder head temperature gauge
12. Oil temperature (entering engine)
13. Oil temperature (exiting engine)
14. Fuel gauge
15. Throttle
16. Propeller pitch
17. Gear winch

Some useful info on the I-16

- The I-16 does have retractable gears, but not automatic. You need to press the “raise/lower gear manually” button 42 times.
- Consider switching the supercharger to stage 2 at around 1500m. Over 3500m the I-16 underperforms significantly.
- The I-16 is very sensitive to engine cutouts (starvings) when pushing the stick forward, since fuel is fed to the engine with gravity. The same stands for many other early planes such as the I-153, the G.50, the Hurricane etc., who have carburetor engines. To restart the engine you must be at low throttle and enough airspeed to at least spin the propeller.
- Armament:
I-16 Type18: nose - 2x7.62mm ShKAS (750rpg/29sec), wings - 2x7.62mm ShKAS (650rpg/25sec).
I-16 Type24 and Type24SPB: nose - 2x7.62mm ShKAS (650rpg/25sec), wings - 2x20mm ShVAK (120rpg/10sec).

1.3 Ilyushin Il-2 Series 1,2,3, Field Mod. “Sturmovik” (‘41)



1. Airspeed indicator
2. Magnetic compass
3. Variometer
4. Altimeter
5. Turn and Bank indicator
6. Artificial Horizon
7. Manifold pressure gauge
8. Coolant temperature gauge
9. Tachometer
10. Oil temperature gauge
11. Oil temperature (upper half), oil pressure (left) and fuel pressure (right)
12. Fuel gauge
13. Throttle
14. Flaps lever
15. Gear lever
16. Clock
17. Undercarriage position indicator:
green - down, red - up, no light - in transition
18. Brake lever
19. Left gear position indicator:
up - gear down, down - gear up
20. Right gear position indicator:
up - gear down, down - gear up

1.4 Ilyushin IL-2 Type M,3,3M,I,T “Sturmovik” (‘42,‘43)



1. Airspeed indicator
2. Magnetic compass
3. Variometer
4. Altimeter
5. Turn and Bank indicator
6. Artificial Horizon
7. Manifold pressure gauge
8. Coolant temperature gauge
9. Tachometer
10. Oil temperature gauge
11. Oil temperature (upper half), oil pressure (left) and fuel pressure (right)
12. Fuel gauge
13. Throttle
14. Flaps lever
15. Gear lever
16. Clock
17. Undercarriage position indicator:
green - down, red - up, no light - in transition
18. Brake lever
19. Left gear position indicator:
up - gear down, down - gear up
20. Right gear position indicator:
up - gear down, down - gear up

Some useful info on the IL-2 Sturmoviks

- Armament: IL-2 Series 1,2: wings - 2x7.62mm ShKAS (750rpg/25sec), wings - 2x20mm ShVAK (500rpg/37sec).
IL-2 Series 3: wings - 2x7.62mm ShKAS (750rpg/25sec), wings - 2x23mm VYa (300rpg/30sec).
IL-2 field mod.: wings - 2x7.62mm ShKAS (750rpg/25sec), wings - 2x23mm VYa (300rpg/30sec), rear gunner (AI only) - 2x7.62mm DA (500rpg/14sec).
IL-2 M: wings - wings - 2x7.62mm ShKAS (750rpg/25sec), wings - 2x23mm VYa (300rpg/30sec), rear gunner - 1x12.7mm UBT (200rpg/12sec).
IL-2 3M: wings - 2x7.62mm ShKAS (750rpg/25sec), wings - 2x37mm NS-37 (50rpg/12sec), rear gunner - 1x12.7mm UBT (200rpg/12sec).

1.5 Mikoyan-Gurevich MiG-3 ('40-'42)



1. Altimeter
2. Magnetic Compass
3. Manifold pressure gauge
4. Fuel gauge
5. Airspeed indicator
6. Turn and Bank indicator
7. Variometer
8. Tachometer
9. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
10. Coolant temperature gauge
11. Oil temperature gauge
12. Gear lever
13. Propeller pitch lever
14. Throttle
15. Undercarriage position indicator:
green - up, red - down, no light - in transition
16. Flaps position indicator
17. Clock
18. Break lever

Some useful info on the Mig-3

- At low altitudes (<4500m) the Mig-3 is particularly weaker and stalls easily.
- Armament: MiG-3U: nose - 2x20mm ShVAK (150rpg/13sec).
MiG-3,3ud: nose - 2x7.62mm ShKAS (750rpg/29sec), nose - 1x12.7mm UBS (300rpg/18sec), wings gunpods - 2x12.7mm UBK (145rpg/9sec).

1.6 Lavochkin-Gorbunov-Goudkov Lagg-3 Series 4,29,35 ('41,'42)



1. Clock
2. Altimeter
3. Magnetic Compass
4. Manifold pressure gauge
5. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
6. Temperature warning light
7. Airspeed indicator
8. Turn and Bank indicator
9. Variometer
10. Repeater Compass
11. Tachometer
12. Fuel gauge
13. Undercarriage position indicator:
green - down, red - up, no light - in transition
14. Throttle
15. Propeller pitch

Some useful info on the Lagg-3

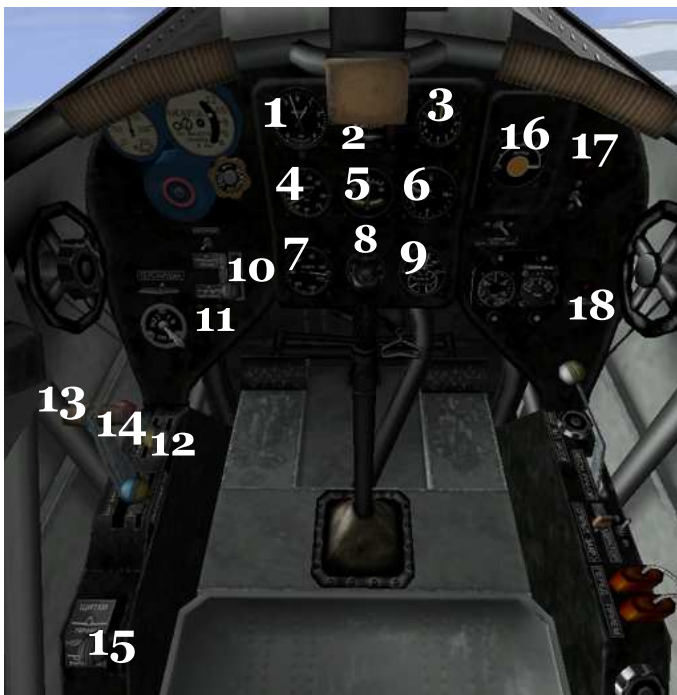
- Consider switching the supercharger to stage 2 at around 3000m. The Lagg-3 performs better at low altitudes.
- Armament: Lagg-3 Series 4: nose - 2x7.62mm ShKAS (325rpg/12sec), nose - 2x12.7mm UBS (220rpg/13sec), engine - 1x20mm ShVAK (120rpg/9sec).
Lagg-3 Series 29,35: nose - 1x12.7mm UBS (220rpg/12sec), engine - 1x20mm ShVAK (120rpg/9sec), engine (optional) - 1x23mm VYa (60rpg/6sec).
Lagg-3 Series 66: nose - 1x12.7mm UBS (220rpg/13sec), engine - 1x20mm ShVAK (120rpg/9sec).
Lagg-3 IT: nose - 1x12.7mm UBS (220rpg/13sec), engine - 1x37mm NS-37 (22rpg/5sec).

1.7 Yakovlev Yak-1,1B ('41,'42)



1. Altimeter
2. Magnetic Compass
3. Manifold pressure gauge
4. Airspeed indicator
5. Turn and Bank indicator
6. Tachometer
7. Clock
8. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
9. Engine coolant temperature
10. Gear lever
11. Supercharger lever:
rear position - stage 1, front - stage 2
12. Propeller pitch lever
13. Throttle
14. Undercarriage position indicator:
green - down, red - up, no light - in transition
15. Flaps lever

1.8 Yakovlev Yak-3,9U,UT ('44,'45)



1. Altimeter
2. Magnetic Compass
3. Clock
4. Airspeed indicator
5. Turn and Bank indicator
6. Variometer
7. Manifold pressure gauge
8. Tachometer
9. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
10. Gear Lever
11. Undercarriage position indicator:
green - down, red - up, no light - in transition
12. Supercharger lever:
rear position - stage 1, front - stage 2
13. Propeller pitch lever
14. Throttle
15. Flaps lever
16. Fuel gauge
17. Low fuel warning light
18. Electric generator warning light

Some useful info on the Yak-3,9U,UT

- Consider switching the supercharger to stage 2 at around 2000m and generally avoid altitudes higher than 4500m.
- Armament:
Yak-3: nose - 2x12.7mm UBS (150rpg/9sec), engine - 1x20mm ShVAK (120rpg/9sec).
Yak-3P: nose - 2x20mm B-20S (130/11sec), engine - 1x20mm B-20 (120/9sec).
Yak-9U: nose - 2x12.7mm UBS (left 170rpg/10sec, right 157rpg/9sec), engine - 1x20mm ShVAK (120rpg/9sec).
Yak-9UT: nose - 2x20mm B-20S (120rpg/10sec), engine - 1x37mm NS-37 (30rpg/7sec).

1.9 Lavochkin La-7 ('44)



1. Clock
2. Altimeter
3. Magnetic Compass
4. Repeater Compass
5. Undercarriage position indicator:
green - down, red - up, no light - in transition
6. Airspeed indicator
7. Turn and Bank indicator
8. Variometer
9. Engine Magnetos position
10. Manifold pressure gauge
11. Tachometer
12. Oil Temperature (upper half),
oil pressure (left), fuel pressure (right)
13. Flaps lever
14. Gear lever
15. Engine Mixture:
rear position - leaner mixture, front - richer
16. Throttle
17. Propeller pitch lever
18. Supercharger lever:
rear position - stage 1, front - stage 2
19. Fuel Gauge
20. External ordnance status light
21. Engine temperature gauge
22. Oxygen flow indicator

Some useful info on the La-7

- Consider to start decreasing the fuel mix when over 3000m.
- The La-7 has two supercharger stages. Consider switching to stage 2 over around 3000m and definitely before 4500m and switch back to stage 1 under that altitude. Lower than 1500m in stage 2 will cause engine damage.
- The La-7 is significantly weaker at high altitudes and is generally slower than contemporary aircraft at over 5000m.
- The La-7 is not a very good diver. If you follow a P47 or a FW190 in a very steep high-speed dive you risk falling apart.
- Armament:
basic La-7: nose - 2x20mm ShVAK (200rpg/17sec)
La-7 3xB20: nose - 3x20mm B20s (left 150rpg/13sec, middle 150rpg/13sec, right 130rpg/11sec)

2 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)



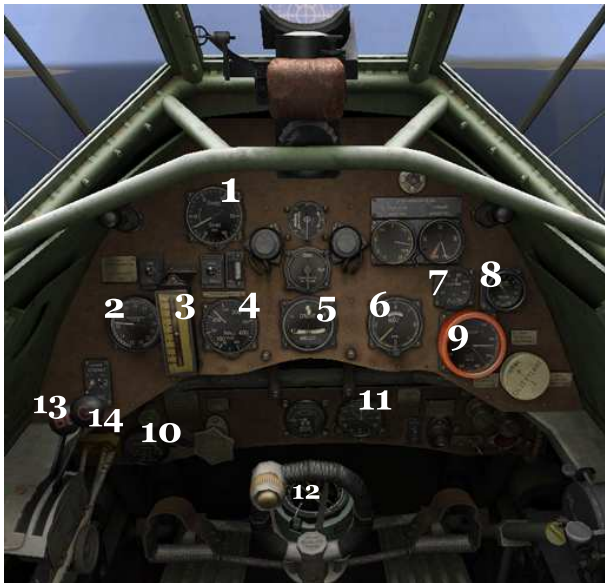
1. Variometer
2. Artificial Horizon / Turn and Bank indicator
3. Altimeter
4. Repeater Compass
5. Undercarriage position indicator:
green - down, red - up, no light - in transition
6. Flaps position indicator:
upper red light (Ein) - raised and combat flaps
middle red light (Start) - take-off flaps
lower 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).

3 Great Britain

3.1 J8A (Swedish version of the Gloster Gladiator) ('37)



1. Variometer
2. Tachometer
3. Angle of attack indicator
4. Airspeed indicator
5. Turn and Bank indicator
6. Altimeter
7. Oil temperature gauge
8. Oil pressure gauge
9. Manifold pressure gauge
10. Fuel gauge
11. Clock
12. Magnetic Compass
13. Engine mixture: rear - leaner mixture, front - richer
14. Throttle

Some useful info on the J8A

- Armament: fuselage - 2x7.7mm Browning (600rpg/36sec), wings - 2x7.7mm Browning (400rpg/24sec).

3.2 Hawker Hurricane ('40-'42)

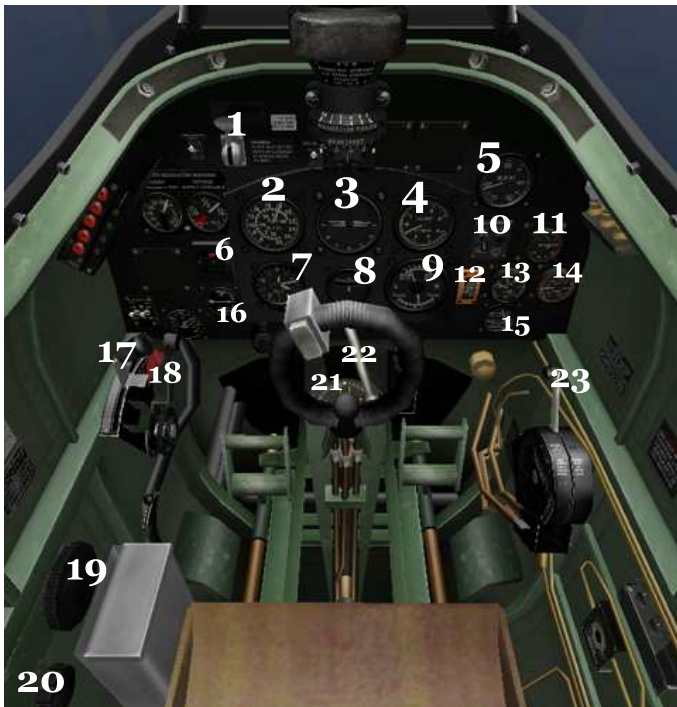


1. Undercarriage position indicator:
green - down, red - up, no light - in transition
2. Tachometer
3. Airspeed indicator
4. Artificial Horizon
5. Variometer
6. Manifold pressure gauge
7. Altimeter
8. Magnetic Compass
9. Turn and Bank indicator
10. Fuel pressure gauge
11. Fuel gauge
12. Oil temperature gauge
13. Coolant temperature gauge
14. Magnetic Compass
15. Propeller pitch lever
16. Throttle
17. Radiator flap position
18. Gear / flaps lever

Some useful info on the Hurricane

- Consider switching the supercharger to stage 2 in combat or in climb, and of course at high altitudes (over 3000m approx.).
- Armament:
Hurricane MkI: wings - 8x7.7mm Browning (333rpg/20sec on average).
Hurricane MkIIb: wings - 12x7.7mm Browning (336rpg/20sec on average).
Hurricane MkIIc: wings - 4x20mm Hispano MkI (91rpg/8sec).
Hurricane MkII field mod.: wings - 2x12.7mm UBK (100rpg/6sec), wings - 2x20mm ShVAK (120rpg/9sec).

3.3 Supermarine Spitfire MkVIII ('43)



1. Flaps lever
2. Airspeed indicator
3. Artificial Horizon
4. Variometer
5. Tachometer
6. Undercarriage position indicator:
down - down, up - up, no light - in transition
7. Altimeter
8. Magnetic Compass
9. Turn and Bank indicator
10. Supercharger warning light
11. Manifold pressure gauge
12. Oil pressure gauge
13. Oil temperature gauge
14. Coolant temperature gauge
15. Fuel gauge
16. Elevator trim indicator
17. Throttle
18. Propeller pitch lever
19. Elevator trim wheel
20. Rudder trim wheel
21. Magnetic Compass
22. Gear brakes lever
23. Gear lever

3.4 Supermarine Spitfire MkIX ('43,'44)



1. Flaps lever
2. Airspeed indicator
3. Artificial Horizon
4. Variometer
5. Tachometer
6. Clock
7. Undercarriage position indicator:
down - down, up - up, no light - in transition
8. Elevator trim indicator
9. Altimeter
10. Magnetic Compass
11. Turn and Bank indicator
12. Supercharger warning light
13. Manifold pressure gauge
14. Oil pressure gauge
15. Oil temperature gauge
16. Coolant temperature gauge
17. Low fuel warning light
18. Fuel gauge
19. Propeller pitch lever
20. Throttle
21. Elevator trim wheel
22. Rudder trim wheel
23. Magnetic Compass
24. Gear lever

Some useful info on the Spitfires

- Armament:
Spitfire MkVb: wings - 4x7.7mm Browning (350rpg/21sec on average, wings - 2x20mm Hispano MkI (60rpg/6sec).
Spitfire MkIXc: wings - 4x7.7mm Browning (350rpg/21sec on average, wings - 2x20mm Hispano MkI (120rpg/12sec).
Spitfire MkIXe: wings - 2x12.7mm Browning (250rpg/20sec on average, wings - 2x20mm Hispano MkI (140rpg/13sec).

4 Japan

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

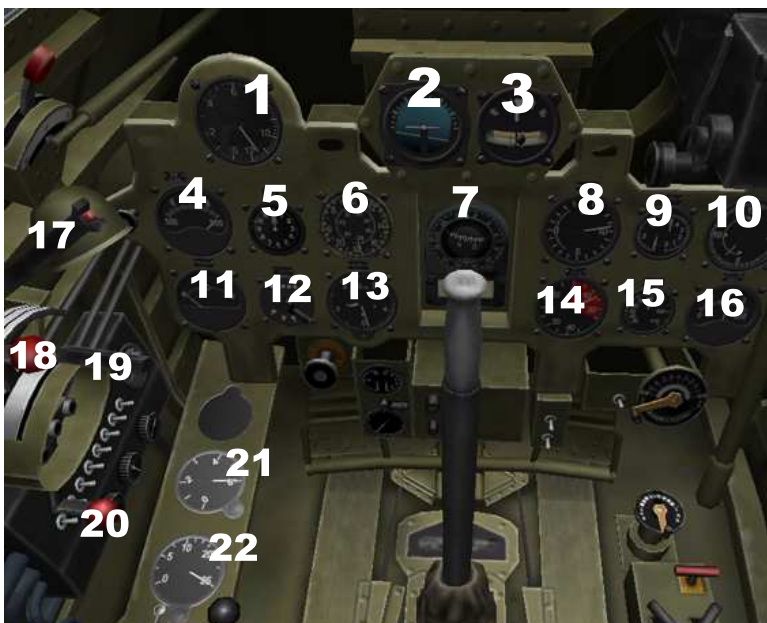


1. Artificial Horizon
2. Turn and Bank indicator
3. Mixture indicator (on A6M5, A6M5a and A6M5b)
4. Clock
5. Airspeed indicator
6. Magnetic Compass
7. Variometer
8. Fuel and oil pressure indicator
9. Tachometer
10. Repeater Compass
11. Engine magnetos position
12. Altimeter
13. Manifold pressure gauge
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)

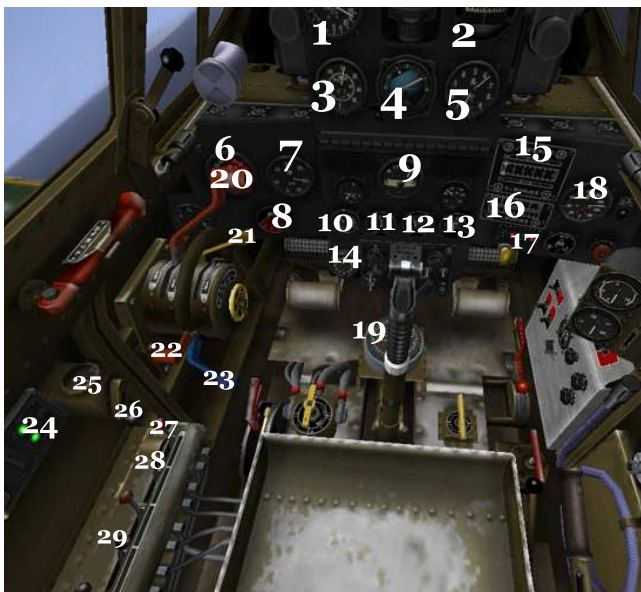


1. Airspeed indicator
2. Artificial Horizon
3. Variometer
4. Altimeter
5. Magnetic compass
6. Turn and Bank indicator
7. Tachometer
8. Clock
9. Manifold pressure gauge
10. Cylinder head temperature
11. Exhaust temperature
12. Oil temperature
13. Engine magnetos position
14. Undercarriage position indicator:
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

5 USA

5.1 B-239 (Finnish modification of the Brewster F2A-1 “Buffalo”) (‘39)

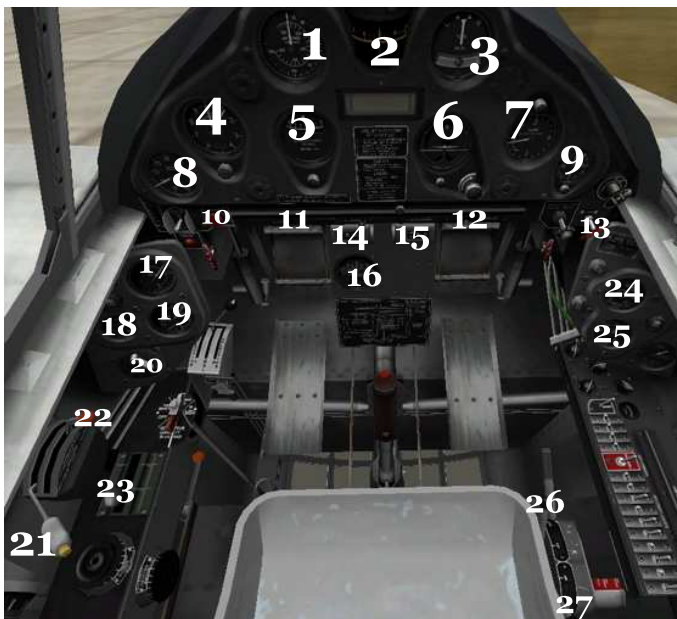


1. Airspeed indicator
2. Turn and Bank indicator
3. Magnetic Compass
4. Altimeter
5. Repeater Compass
6. Artificial Horizon
7. Variometer
8. Manifold pressure gauge
9. Clock
10. Gear warning Light
11. Gear position indicator
12. Flaps position indicator
13. Left fuselage Machine Gun Ammo
14. Right fuselage Machine Gun Ammo
15. Engine temperature
16. Repeater Compass
17. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
18. Tachometer
19. Throttle
20. Propeller pitch
21. Engine mixture: rear - leaner mixture, front - richer
22. Fuel gauge
23. Fuel gauge
24. Gear lever
25. Flaps lever

Some useful info on the B-239

- Switch supercharger speed at around 3000m. Avoid very high altitudes (>4500m).
- Armament: fuselage - 2x12.7mm Browning .50 (250rpg/22sec), wings - 2x12.7mm Browning .50 (250rpg/22sec).

5.2 Brewster F2A-2 “Buffalo” (‘40)



1. Airspeed indicator
2. Magnetic Compass
3. Turn and Bank indicator
4. Altimeter
5. Repeater Compass
6. Artificial Horizon
7. Variometer
8. Manifold pressure gauge
9. Clock
10. Propeller pitch
11. Gear position indicator
12. Flaps position indicator
13. Engine starter
14. Left fuselage Machine Gun Ammo
15. Right fuselage Machine Gun Ammo
16. Cylinder head temperature
17. Tachometer
18. Air temperature
19. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
20. Engine magnetos position
21. Throttle
22. Engine mixture: rear - leaner mixture, front - richer
23. Supercharger lever: rear - stage 1, front - stage 2
24. Fuel gauge
25. Fuel gauge
26. Gear lever
27. Flaps lever

5.3 Grumman F4F-3,4,FM-2 “Wildcat” (‘41-‘43)



1. Directional Gyro
2. Artificial Horizon
3. Oil temperature
4. Altimeter
5. Airspeed indicator
6. Turn and Bank indicator
7. Variometer
8. Manifold pressure gauge
9. Tachometer
10. Arrester hook lever
11. Clock
12. Propeller pitch
13. Rear wheel locking lever: front - locked, rear - unlocked
14. Throttle
15. Engine mixture
16. Aileron trim wheel
17. Rudder trim wheel
18. Elevator trim wheel
19. Supercharger lever: front - stage 1, middle - 2, rear - 3
20. Flaps lever
21. Repeater Compass
22. Radiator handle
23. Outside temperature gauge
24. Oil temperature (upper half), oil pressure (left) and fuel pressure (right)
25. Fuel gauge
26. Landing Gear position indicator
27. Gear winch

5.4 Grumman F6F-3late,5 “Hellcat” (‘43,‘44)



1. Clock
2. Magnetic Compass
3. Repeater Compass
4. Artificial Horizon
5. Tachometer
6. Altimeter
7. Airspeed indicator
8. Turn and Bank indicator
9. Variometer
10. Manifold pressure gauge
11. Ammo
12. Flaps and Gear position indicator
13. Gear lever
14. Flaps lever
15. Propeller pitch
16. Throttle
17. Supercharger lever: front - stage 1, middle - 2, rear - 3
18. Engine mixture: rear - 100% mixture, front - 120%
19. Radiator lever
20. Rudder trim wheel
21. Elevator trim wheel
22. Fuel gauge
23. Engine temperature gauge
24. Oil temperature gauge
25. Oil temperature (upper half), oil pressure (left) and fuel pressure (right)

Some useful info on the Wildcats and Hellcats

- The wildcats do not have automatically retractable gears. You need to press the “raise/lower gear manually” button as indicated by the landing gear position indicator (26).
- For both Wildcats and Hellcats consider changing the supercharger speed to stage 2 at around 8200ft and stage 3 at around 19000ft.

5.5 Curtiss P-40B,C,Hawk 81A-2,Tomahawk Mk.IIa,b ('41)



1. Overheat warning light
2. Magnetic Compass
3. Artificial Horizon
4. Airspeed indicator
5. Turn and Bank indicator
6. Variometer
7. Fuel gauge
8. Clock
9. Altimeter
10. Manifold pressure gauge
11. Tachometer
12. Engine magnetos position
13. Flaps and gear position indicator
14. Suction
15. Carburetor air temperature gauge
16. Magnetic Compass
17. Coolant temperature gauge
18. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
19. Throttle
20. Propeller pitch
21. Rudder trim wheel
22. Elevator trim wheel
23. Gear lever

5.6 Curtiss P-40E,M "Warhawk" ('41,'42)



1. Low fuel warning light
2. Magnetic Compass
3. Artificial Horizon
4. Overheat warning light
5. Turn and Bank indicator
6. Airspeed indicator
7. Altimeter
8. Variometer
9. Manifold pressure gauge
10. Carburetor intake air temperature gauge
11. Coolant temperature gauge
12. Flaps and landing gear position indicator
13. Clock
14. Tachometer
15. Magnetic Compass
16. Oil pressure
17. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
18. Throttle
19. Propeller pitch lever

Some useful info on the P-40E,M

- The P-40E and M perform better at lower altitudes (<3500m).
- Armament: wings - 6x12.7mm Browning .50 (280rpg/22sec on average).

5.7 Bell P-39 "Airacobra" ('41-'44)



1. Altimeter
2. Repeater Compass
3. Magnetic Compass
4. Artificial Horizon
5. Airspeed indicator
6. Variometer
7. Turn and Bank indicator
8. Manifold pressure gauge
9. Coolant temperature gauge
10. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
11. Fuel gauge
12. Tachometer
13. Clock
14. Oil pressure gauge
15. Suction
16. Gear warning light
17. Throttle
18. Propeller pitch lever
19. Low fuel pressure warning light

Some useful info on the P-39

- The P-39 has a tendency to stall easily if not flown gently. It performs much better at lower altitudes.
- Armament:
P-39N-1: wings - 4x7.62mm Browning .30 (500rpg/29sec or 1000rpg/58sec), nose - 2x12.7mm Browning .50 (200rpg/18sec), nose - 1x37mm M4 (30rpg/11sec).
P-39Q-1: wings - 2x12.7mm Browning .30 (300rpg/23sec, nose - 2x12.7mm Browning .50 (200rpg/18sec), nose - 1x37mm M4 (30rpg/11sec).
P-39Q-10: nose - 2x12.7mm Browning .50 (200rpg/18sec), nose - 1x37mm M4 (30rpg/11sec).

5.8 Bell P-63 "Kingcobra" ('44)



1. Bank indicator
2. Altimeter
3. Repeater Compass
4. Magnetic Compass
5. Artificial Horizon
6. Airspeed indicator
7. Variometer
8. Turn and Bank indicator
9. Manifold pressure gauge
10. Tachometer
11. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
12. Fuel gauge
13. Clock
14. Oil pressure gauge
15. Suction gauge
16. Undercarriage position indicator:
green - down, red - up, no light - in transition
17. Throttle
18. Propeller pitch lever
19. Oil pressure gauge

5.9 Vaught F4U “Corsair” (‘43-‘45)



1. Water injection warning light
2. Stall warning light
3. Altimeter
4. Magnetic Compass
5. Repeater Compass
6. Tachometer
7. Manifold pressure gauge
8. Airspeed indicator
9. Turn and Bank indicator
10. Flaps lever
11. Undercarriage and air brakes position indicator:
left position - up, right - down
12. Propeller pitch
13. Throttle
14. Supercharger lever: front - stage 1, middle - 2, rear - 3
15. Engine mixture: rear - 100% mixture, front - 120%
16. Gear lever
17. Aileron trim wheel
18. Elevator trim wheel
19. Rudder trim wheel
20. Wing fold lever: front - wings folded, rear - extended
21. Artificial Horizon
22. Clock
23. Oil temperature gauge
24. Variometer
25. Cylinder head temperature gauge
26. Accelometer
27. Oil pressure gauge
28. Fuel pressure gauge
29. Fuel gauge
30. Arrestor hook lever: front - down, rear - up

5.10 Republic P-47D-27 “Thunderbolt” (‘44)



1. Undercarriage position indicator:
green - down, red - up, no light - in transition
2. Clock
3. Airspeed indicator
4. Magnetic compass
5. Altimeter
6. Turn and Bank indicator
7. Accelometer
8. Magnetic compass
9. Propeller pitch
10. Throttle
11. Flaps lever
12. Manifold pressure gauge
13. Tachometer
14. Artificial Horizon
15. Tachometer
16. Low fuel warning light
17. Fuel gauge
18. Oil temperature (upper half),
oil pressure (left), fuel pressure (right)
19. Oil temperature gauge

Some useful info on the P-47

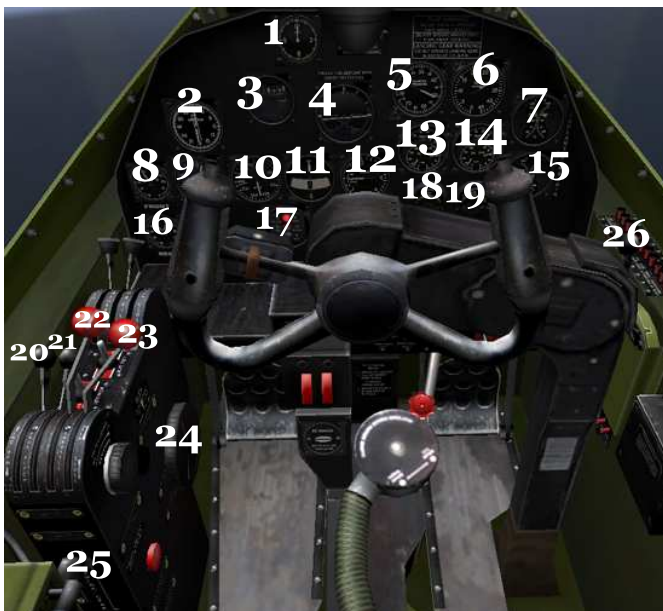
- The P-47 is underperforming significantly under 2000m.
- Consider switching the supercharger speed to stage 2 at around 4500m.
- Armament: P-47D-10,22,27: outer wings - 4x12.7mm Browning .50 (200rpg/15sec or 425rpg/33sec), inner wings - 4x12.7mm Browning .50 (200rpg/15sec or 425rpg/33sec).

5.11 Douglas SBD-3,5 “Dauntless” (‘42,‘43)



1. Tachometer
2. Manifold pressure gauge
3. Altimeter
4. Magnetic Compass
5. Artificial Horizon
6. Oil temperature (upper half), oil pressure (left), fuel pressure (right)
7. Airspeed indicator
8. Turn and Bank indicator
9. Variometer
10. Clock
11. Cylinder head temperature gauge
12. Suction
13. Oil temperature gauge
14. Fuel gauge
15. Engine magnetos position
16. Radiator lever
17. Supercharger lever: rear - stage 1, front - stage 2
18. Throttle
19. Engine mixture
20. Propeller pitch
21. Bomb release lever
22. Aileron trim wheel
23. Elevator trim wheel
24. Rudder trim wheel
25. Engine starter
26. Flaps lever
27. Gear lever
28. Dive brakes lever
29. Flaps position indicator
30. Gear position indicator

5.12 Lockheed P-38 “Lightning” (‘43,‘44)



1. Clock
2. Repeater Compass
3. Magnetic Compass
4. Artificial Horizon
5. Manifold pressure - 2-dial for left and right engine
6. Tachometer - 2-dial for left and right engine
7. Coolant temperature gauge for left and right engine
8. Fuel gauge - front tank
9. Altimeter
10. Airspeed indicator
11. Turn and Bank indicator
12. Variometer
13. Left eng. oil temp. (upper half), oil pres. (left), fuel pres. (right)
14. Right eng. oil temp. (upper half), oil pres. (left), fuel pres. (right)
15. Carburetor intake air temperature gauge for left and right engine
16. Fuel gauge - rear tank
17. Undercarriage indicator: green - down, red - up, no light - in transition
18. Left engine ampmeter
19. Right engine ampmeter
20. Left side propeller pitch
21. Right side propeller pitch
22. Left engine throttle
23. Right engine throttle
24. Elevator trim wheel
25. Gear lever
26. Flaps lever

Some useful info on the P-38

- The P-38 is a twin-engine fighter. You need to know the basics of complex engine management (startup, fly with one engine etc.).
- Armament: P-38J: nose - 4x12.7mm Browning (500rpg/39sec), nose - 1x20mm Hispano M2 (150rpg/14sec). P-38L: nose - 4x12.7mm Browning (500rpg/39sec), nose - 1x20mm Hispano M2 (150rpg/14sec), wings gunpods - 2xdual.50cal (350rpg/27sec).

5.13 North American P-51 D20NA “Mustang” (‘44)



1. K-14 gunsight wingspan selection
2. K-14 mode selector knob
3. Repeater compass
4. Clock
5. Airspeed indicator
6. Magnetic compass
7. Artificial Horizon
8. Altimeter
9. Turn and Bank indicator
10. Variometer
11. Undercarriage position indicator:
green - down, red - up, no light - in transition
12. Supercharger warning light
13. Propeller pitch
14. Throttle
15. Gear lever
16. Rudder trim wheel
17. Aileron trim wheel
18. Elevator trim wheel
19. Flaps lever
20. Suction gauge
21. Manifold pressure gauge
22. Coolant temperature gauge
23. Tachometer
24. Carburetor intake air temperature gauge
25. Oil temperature (upper half),
oil pressure (left) and fuel pressure (right)
26. Left wing tank fuel gauge
27. Right wing tank fuel gauge

28. Fuselage tank fuel gauge
(situated at the left hand side of the headrest)

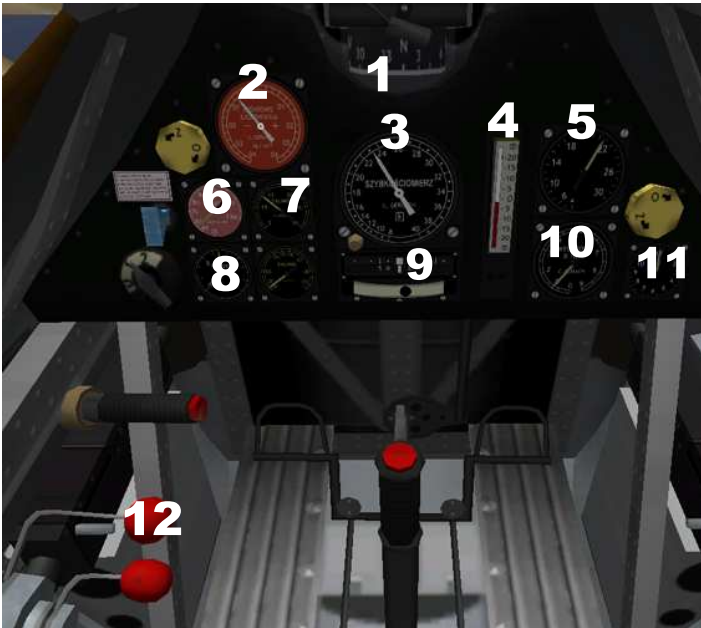


Some useful info on the P-51

- Armament:
P-51B-NA and P-51C-NT: wings - 4x12.7mm Browning .50 (350rpg/27sec)
P-51D-5NT and P-51D-20NA: wings - 6x12.7mm Browning .50 (inner pair 400rpg/31sec, the rest 270rpg/21sec).

6 others

6.1 PZL P.11c (Poland, '39)

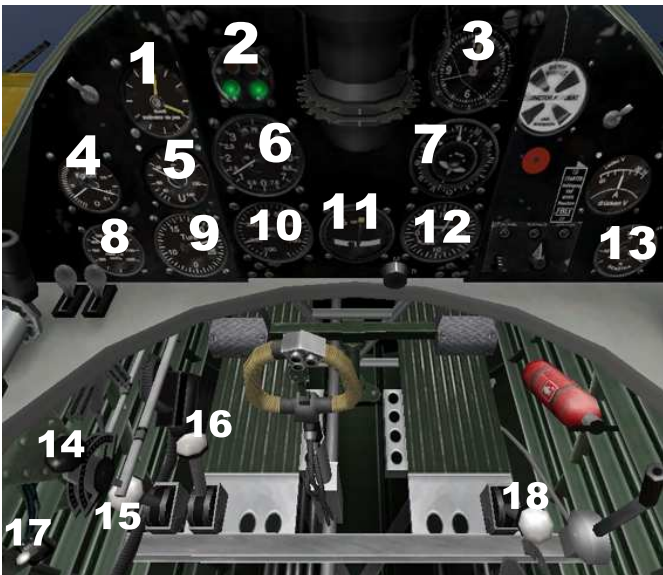


1. Magnetic Compass
2. Manifold pressure gauge
3. Airspeed indicator
4. Variometer
5. Tachometer
6. Engine temperature gauge
7. Fuel pressure gauge
8. Oil temperature gauge
9. Turn and Bank indicator
10. Altimeter
11. Clock
12. Throttle

Some useful info on the P.11c

- Armament: fuselage - 2x7.92mm PWU wz.33 (750rpg/45sec), wings - 2x7.92mm PWU wz.33 (350rpg/18sec).

6.2 IAR-81 (Romania, '40)



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

Some useful info on the IAR81

- Armament:
IAR-81a: wings - 4x7.62mm Browning FN (1000rpg/60sec), wings - 2x13mm MG131(350rpg/25sec).
IAR-81c: wings - 4x7.62mm Browning FN (1000rpg/60sec), wings - 2x20mm MMG151/20 (250rpg/20sec).

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.