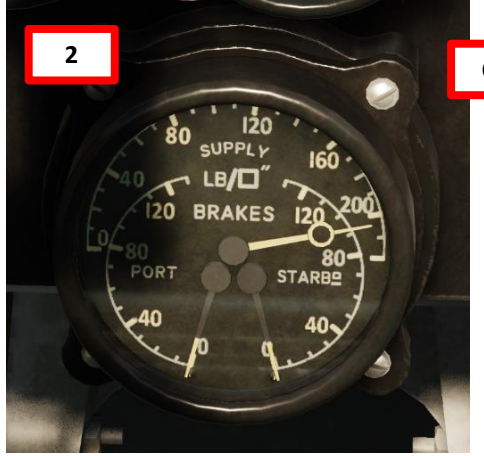
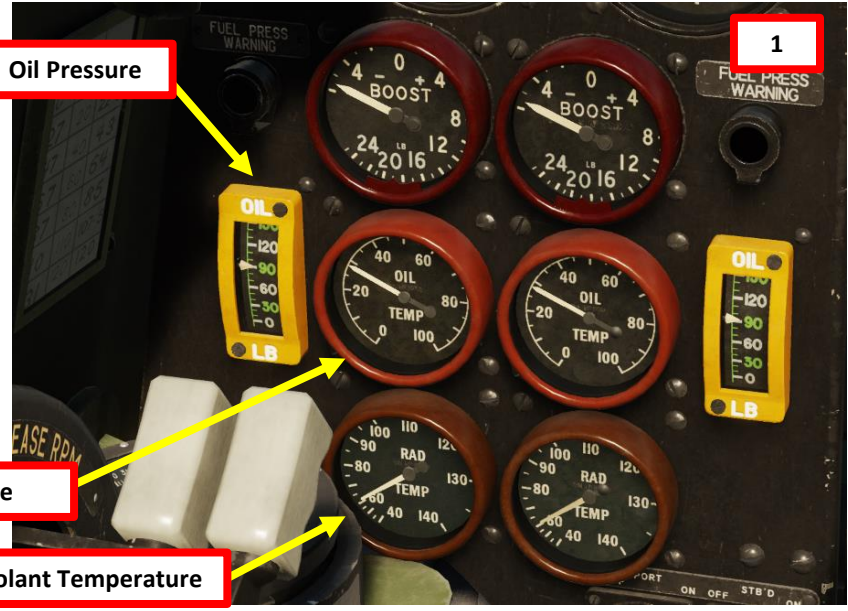
TAXI PROCEDURE

1. Ensure engine oil temperature is between 20 and 80 deg C, oil pressure is between 60 and 120 psi, and coolant temperature is between 40 and 120 deg C.
2. Ensure pneumatic pressure is no less than 200 psi.
3. Start taxiing when engine is warmed up by releasing the Parking Brake (press on the Brake Lever to release the brakes).
4. Throttle up and check brake effectiveness.
5. Set throttles to 1200 RPM, open canopy and start taxiing. Reduce throttles as required to maintain a safe taxi speed. While taxiing, keep the stick pulled fully aft.
6. To execute a turn, press and hold the wheel brake lever while simultaneously giving rudder input in the desired direction. The brakes are pneumatically actuated.
7. Line up on the runway.

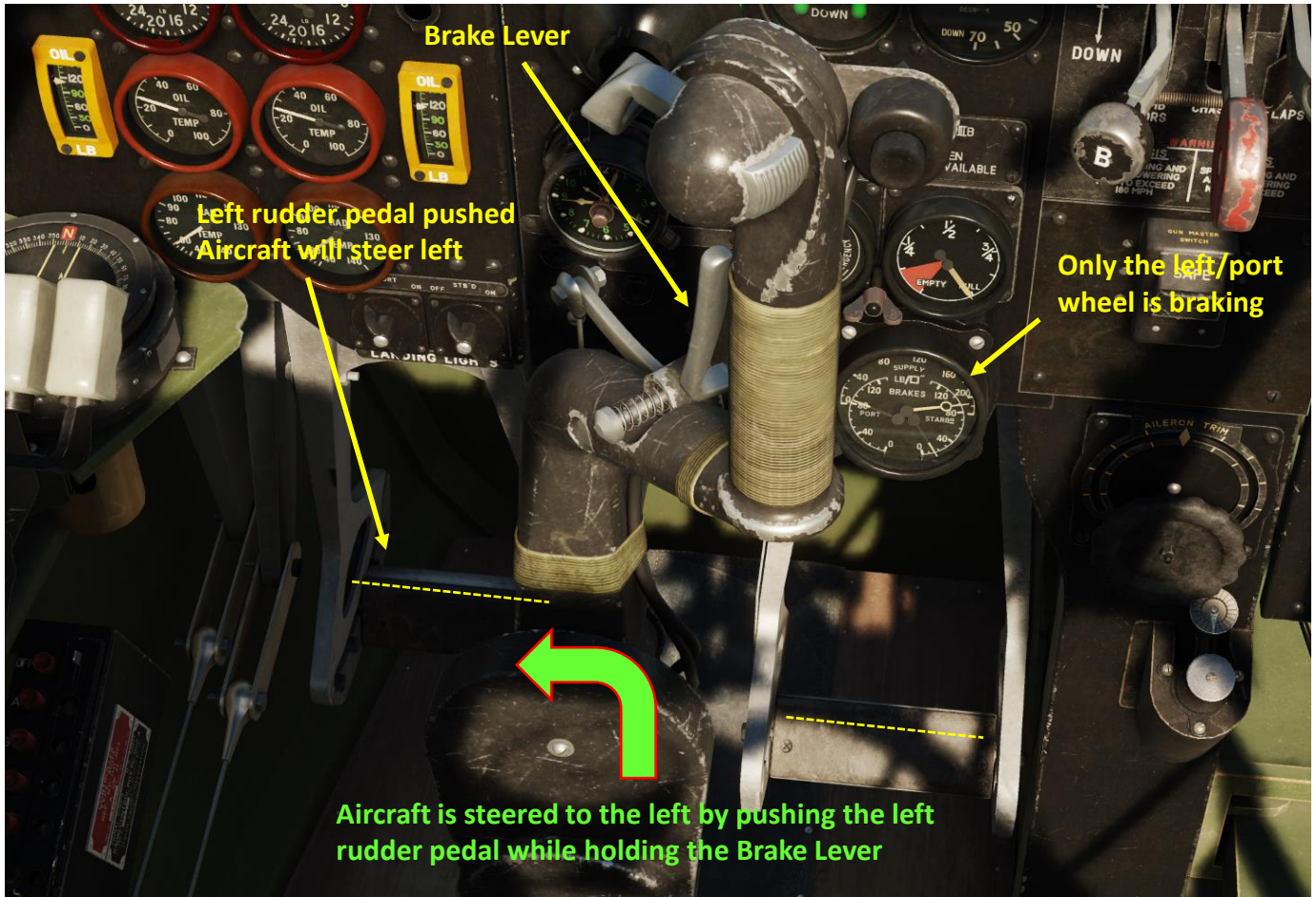
Note: *During taxi, keep the control stick pulled completely AFT to ensure that the tailwheel remains straight.*

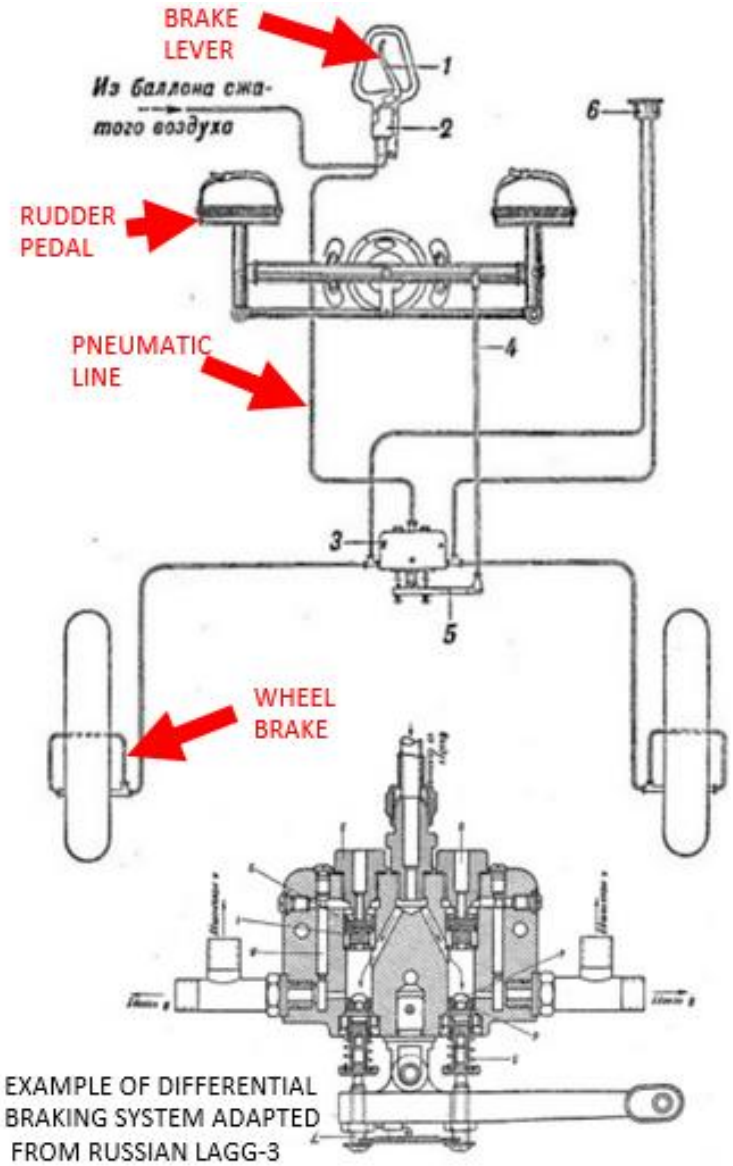




BRAKING TIPS

Braking is done by holding the braking lever while giving rudder input to steer the aircraft in the direction you want to turn. Make sure you have adequate RPM and Boost/Manifold Pressure settings or your turn radius will suffer. The best way to move safely on the tarmac is to give very gentle throttle input to ensure you maintain control of the aircraft while steering left and right once in a while to check for obstacles to ensure that the tailwheel remains straight.

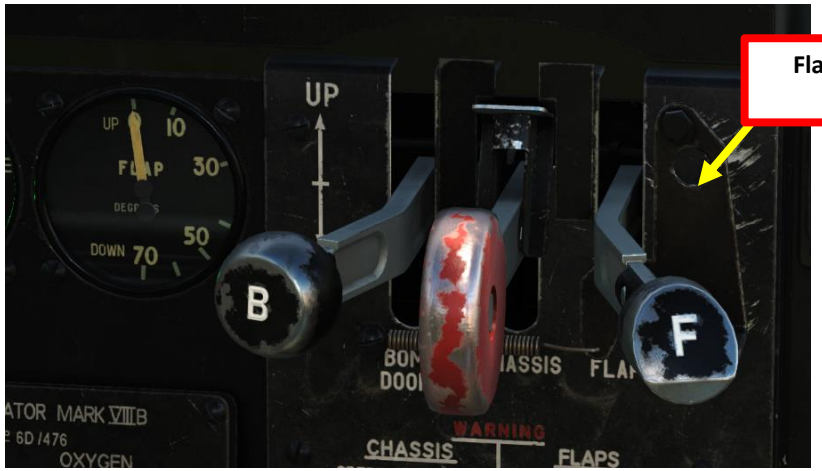


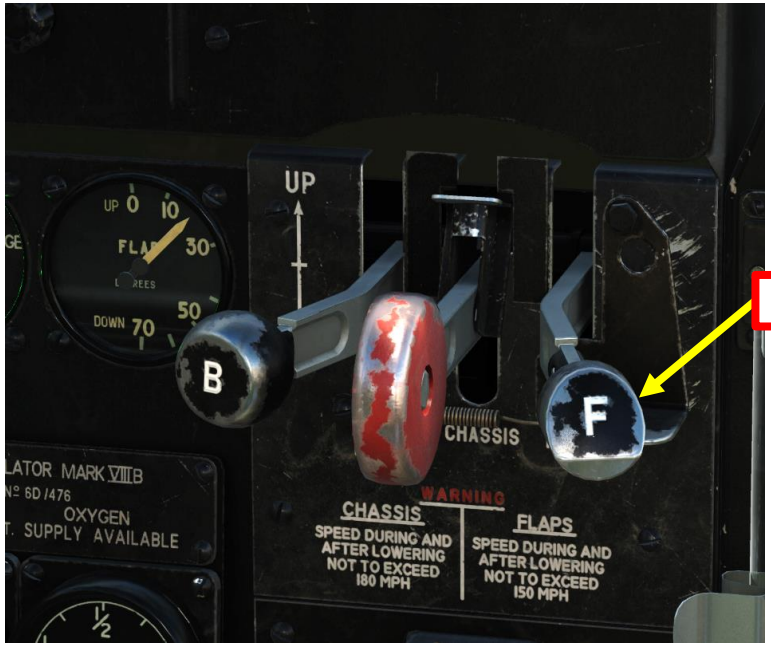


EXAMPLE OF DIFFERENTIAL BRAKING SYSTEM ADAPTED FROM RUSSIAN LAGG-3

TAKEOFF PROCEDURE

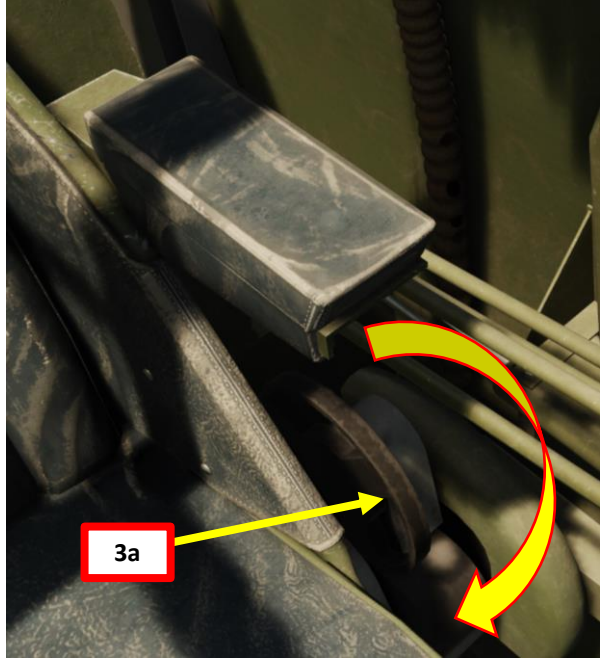
1. Set Flaps – 15 deg or higher.
   a) Unlock Flap Control Lever Safety Catch
   b) Hold Flap Lever – DOWN
   c) When Flap Lever is in desired position (15 deg or more), set the Flap Lever back to the NEUTRAL (MIDDLE) position.
   - Note: You can takeoff with no flaps if desired, but only with light payloads. In that case, you will need a longer runway.

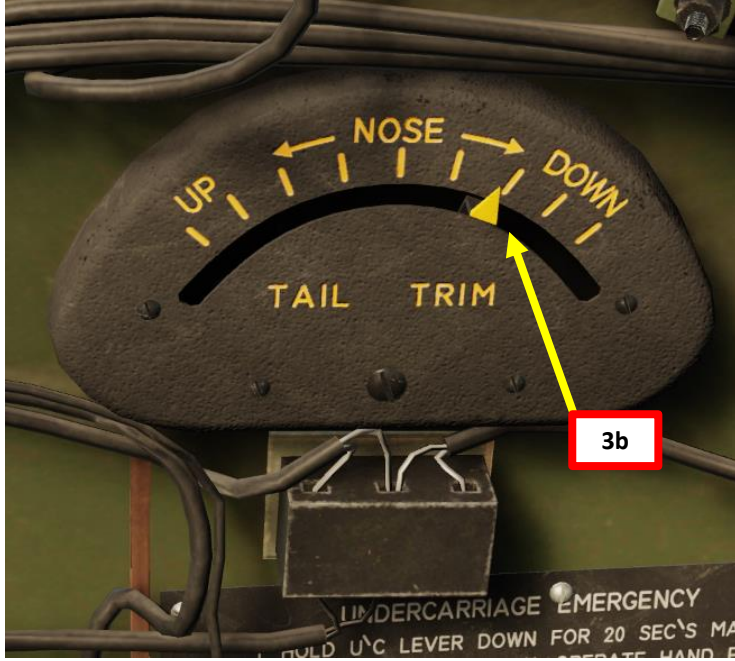


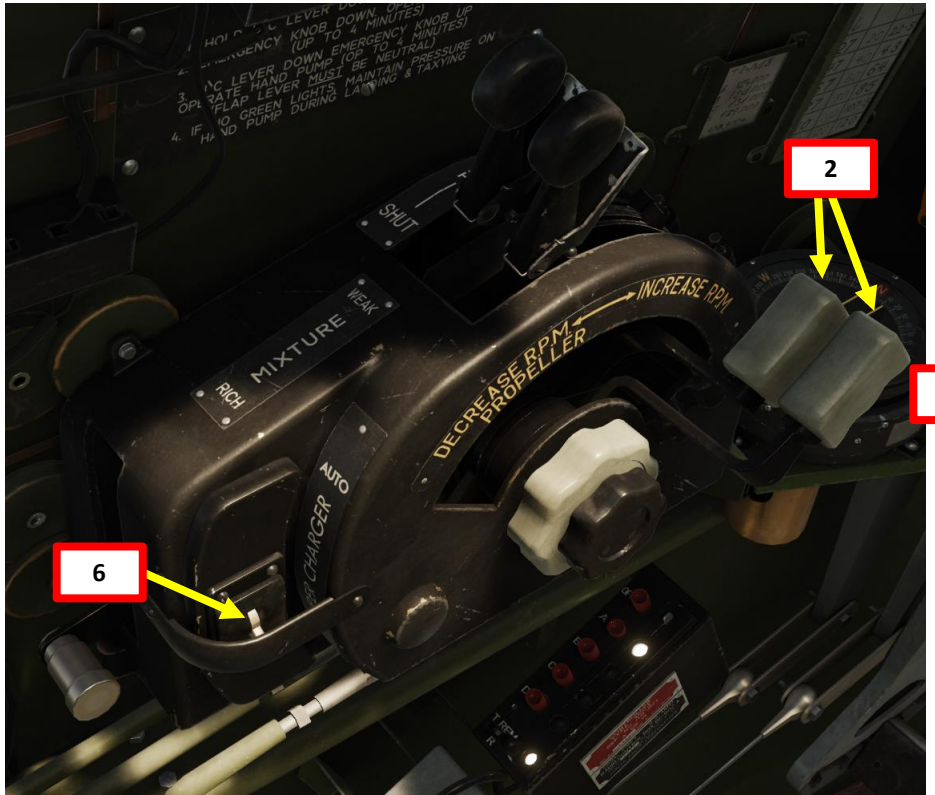


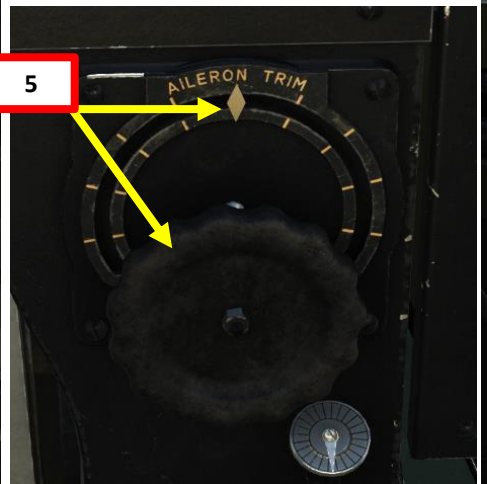
TAKEOFF PROCEDURE

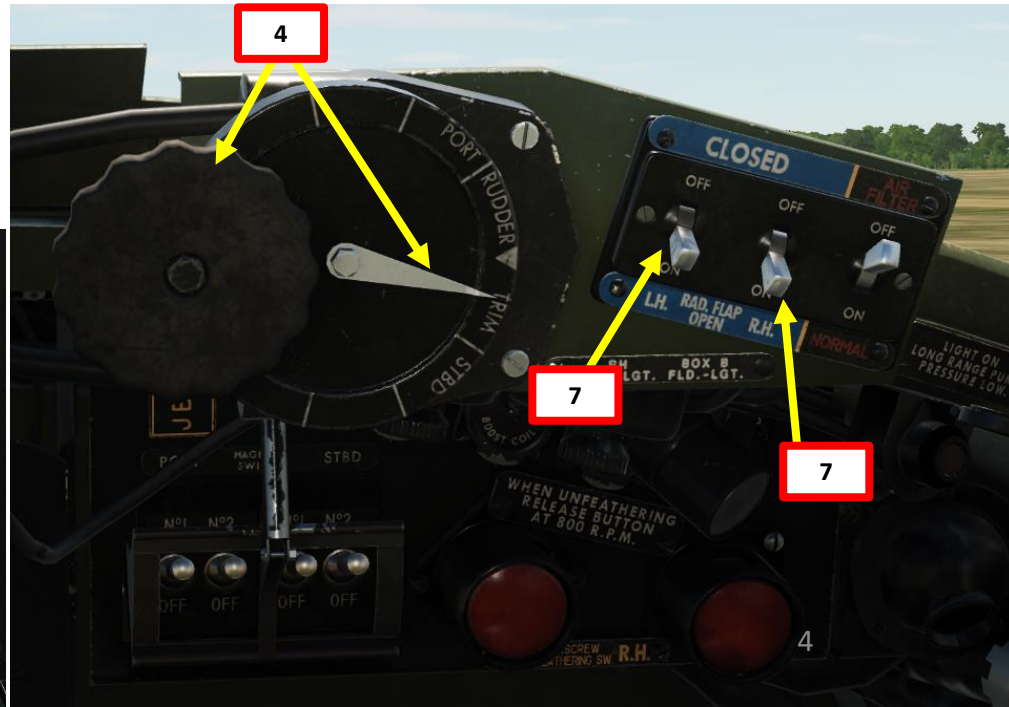
2. Ensure RPM Control levers are fully forward
3. Set Elevator Trim for takeoff setting
   - Light Payload (No Bombs/Rockets) with no flaps: 0.5 division Nose DOWN
   - Light Payload (No Bomb/Rockets) with flaps: 2 divisions Nose DOWN
   - Heavy Payload (Bombs/Rockets) with flaps: 2.5 divisions Nose DOWN
4. Set Rudder Trim – half a division RIGHT (DOWN), roughly aligned on the "T" of "TRIM" letters.
5. Set Aileron Trim – NEUTRAL
6. Ensure Supercharger Switch is set to Moderate / Lower Gear (DOWN)
7. Confirm Radiator Shutters – OPEN (DOWN)





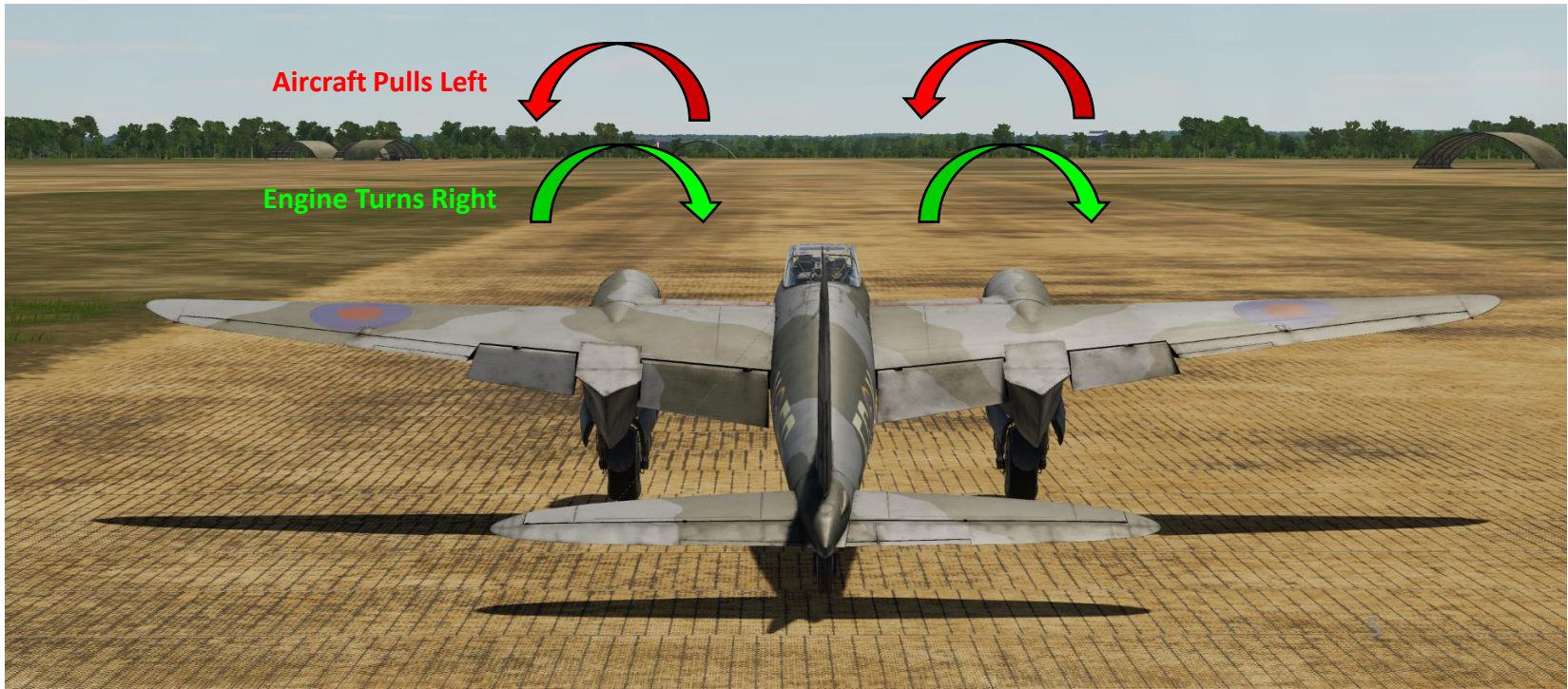






TAKEOFF PROCEDURE

8. Pull stick fully back to ensure that tailwheel remains straight.
9. Hold the Wheel Brake Lever
10. Advance the throttles slowly, checking any tendency to swing by coarse use of the rudder and by differential throttle movement. There is little tendency to swing if the engines are kept synchronized.
    - Keep in mind that the **throttles are very sensitive**; a very small throttle movement can generate a big power change.
11. Release Wheel Brake Lever, then increase power. There are two different methods to increase power for takeoff:
    - **Method 1 (recommended for light payloads):** Advance both throttles to +0 Boost, which will allow you to accelerate to 35 mph (speed at which the rudder becomes effective). When reaching 35 mph, throttle up to +9 Boost (Takeoff Power). Make sure you have enough runway for this method.
    - **Method 2 (recommended for heavy payloads):** Gradually advance both throttles to +9 Boost (Takeoff Power), but lead with the left throttle. Once the tail starts rising (meaning that rudder control is becoming effective), balance out the throttles.
12. Slowly release control stick to center position as aircraft gains speed (above 35 mph) and tailwheel leaves the ground.
13. Keep the aircraft lined up on the runway with rudder pedals as the aircraft accelerates.
14. The aircraft should start lifting off the ground by itself as you gain speed above 100 mph.
15. Safety speed (vary with aircraft loadout):
    - At a weight of approx. 17000 lbs flaps up (or 15 deg down) at +9 boost, safety speed is 180 mph.
    - At a weight of approx. 17000 lbs flaps up (or 15 deg down) at +18 boost, safety speed is 200 mph



Note:
Both engines turn to the right (clockwise), which makes the aircraft want to swing towards the left. Wouldn't it have been easier to have two engines rotating in the opposite direction to help minimize the induced torque?

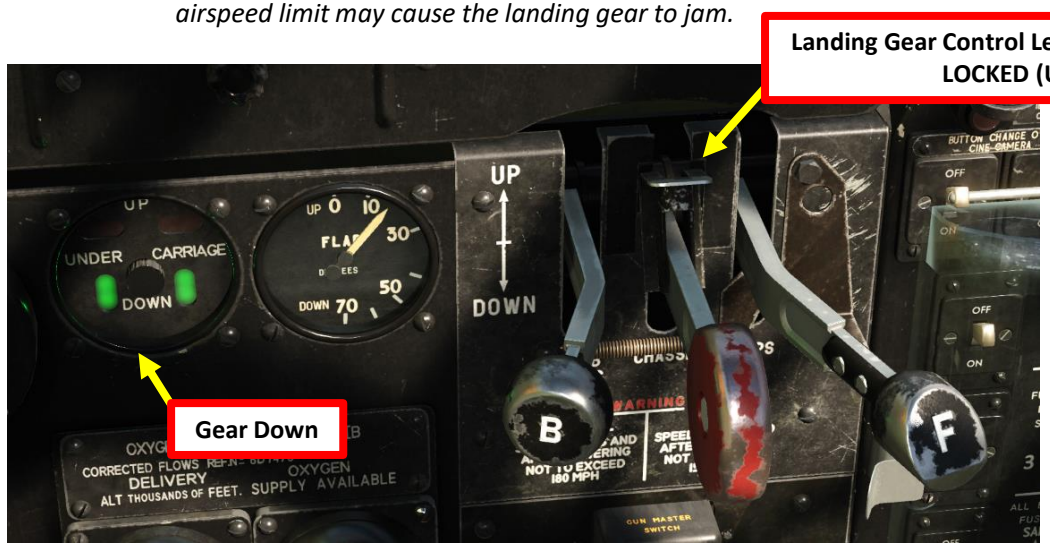
Part of the reason behind this seemingly odd choice is that using two engines rotating in the same direction helped streamlining the production and reducing manufacturing costs, since creating a different engine variant required additional assembly lines.

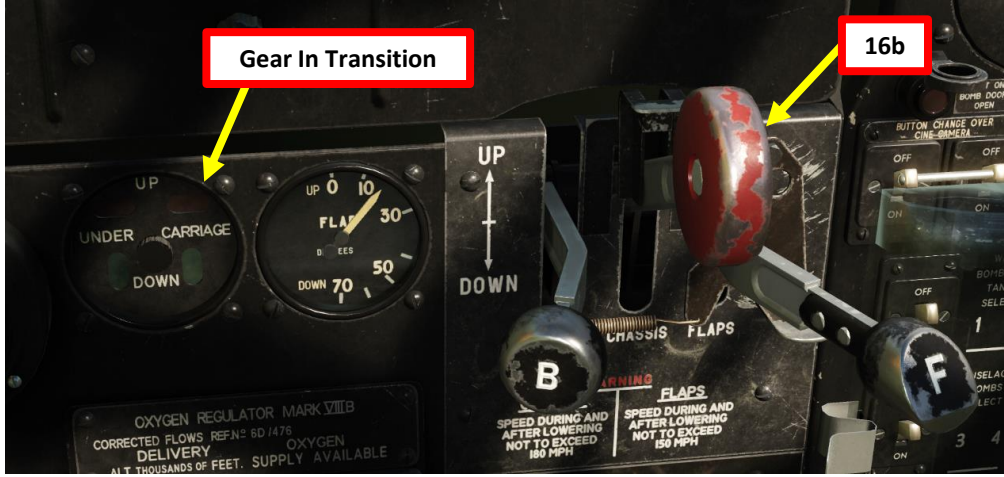
TAKEOFF PROCEDURE

TAKEOFF PROCEDURE

16. Once in the air, tap wheel brake to stop the wheels from spinning, then raise Landing Gear (Undercarriage) using the Landing Gear Lever.
    a) Unlock Landing Gear Control Lever Safety Catch
    b) Set Landing Gear Lever – UP (RETRACT)
    c) Once Landing Gear is retracted and locked, set Landing Gear Lever – NEUTRAL (MIDDLE).

- *Note: Landing gear should be raised before reaching an airspeed of 180 mph. Failing to respect this airspeed limit may cause the landing gear to jam.*



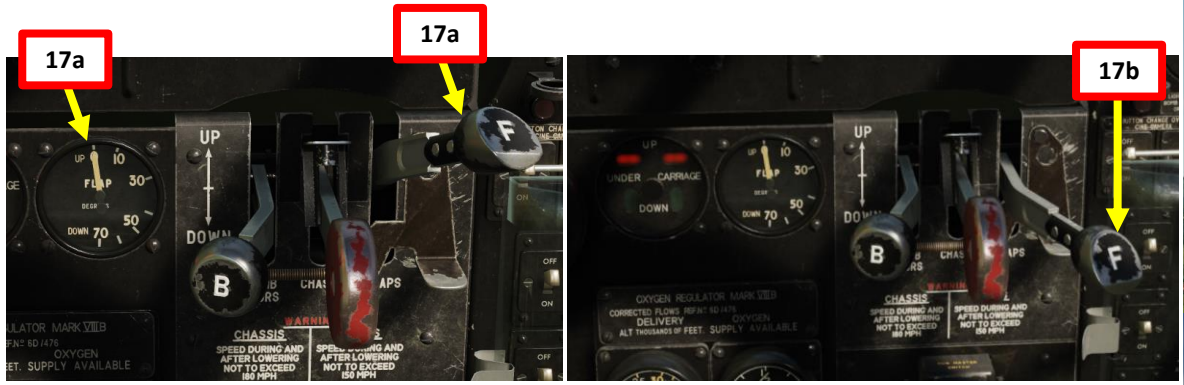


TAKEOFF PROCEDURE

17. If the flaps have been used for takeoff:
Once landing gear is retracted and locked, raise flaps setting the Flaps Lever UP, then back to the NEUTRAL (MIDDLE) position once the flaps position have reached 0 deg.

- *Note: Flaps should be raised before reaching an airspeed of 150 mph. Failing to respect this airspeed limit may cause the flaps to jam.*

VIDEO DEMO:
https://youtu.be/S8aa9d4geDs?t=1739

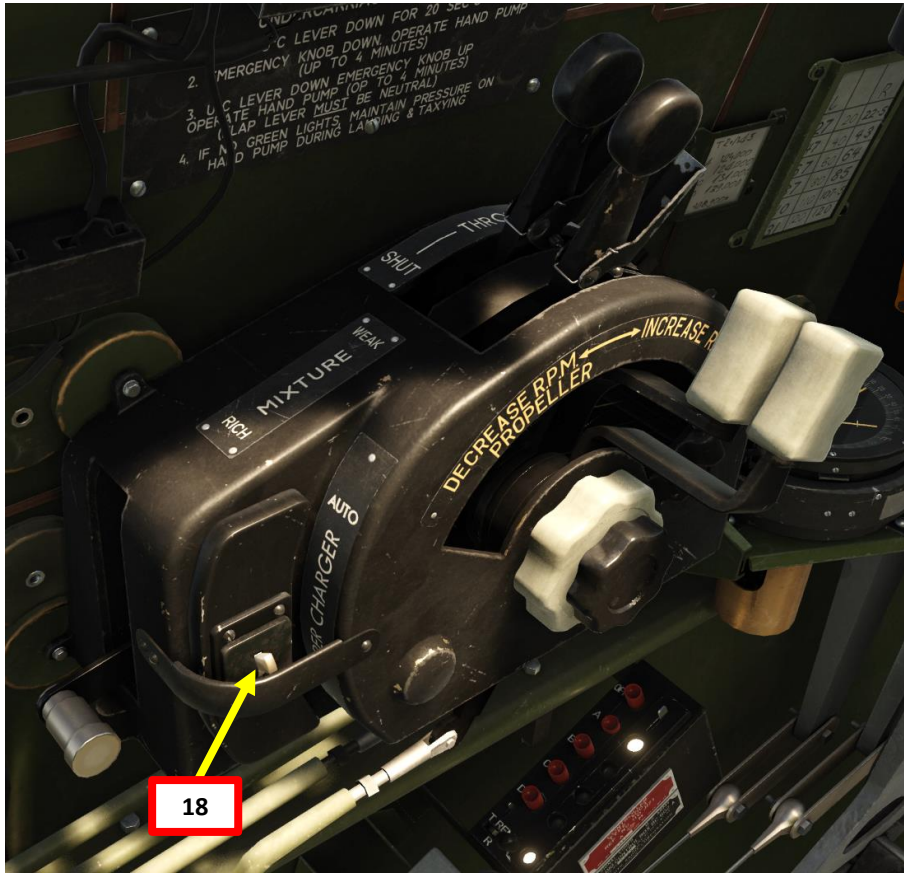


CLIMB

18. Start climbing at 170 mph (best climb speed) and adjust power with throttles and RPM control levers
    - If maximum continuous rate of climb is required, use +9 psi boost and 2850 RPM.
    - If maximum rate of climb is not required, use +7 psi boost and 2650 RPM. Doing so conserves fuel and increases total flight range.
        - Note: when climbing with a boost setting of less than +9 Boost (psi), the automatic boost control cannot open the throttle valves fully and the boost will begin to fall off before full throttle height is reached. The throttles should be progressively advanced to the gate to maintain the desired boost.
19. When Boost decreases below +4 psi as altitude increases, set Supercharger Switch – Automatic Gear (UP). Then, re-adjust throttles accordingly.
20. When flying above 18000 ft, decrease climb speed by 3 mph per 1000 ft.

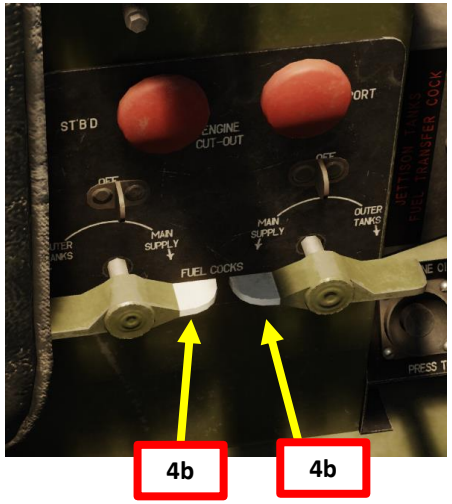
CRUISE

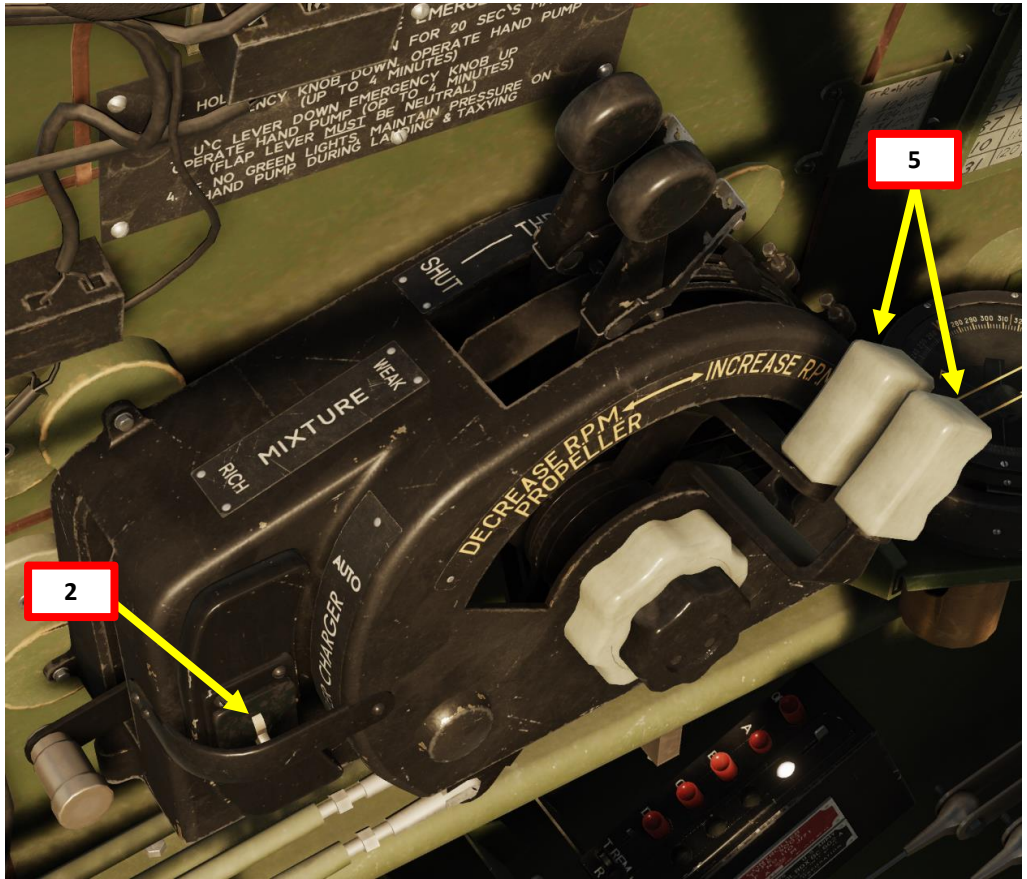
21. Recommended cruise speed is 240 mph (both engines operating) or 180 mph in case of a single engine failure.



NORMAL LANDING PROCEDURE

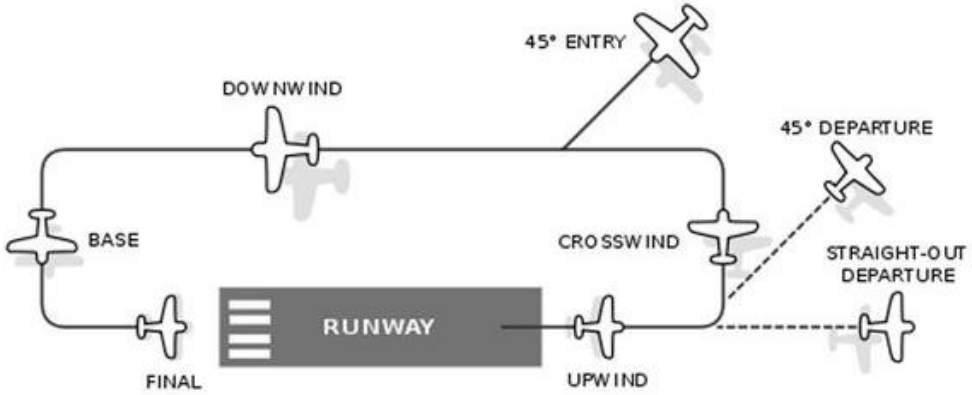
1. Check that brake pressure is at least 200 psi
2. Set Supercharger Switch to Moderate / Lower Gear (DOWN)
3. Confirm Radiator Shutters – OPEN (DOWN)
4. Set Fuel Cock Selectors to the fullest tanks.
5. Adjust RPM Control Levers to maintain 2850 RPM.

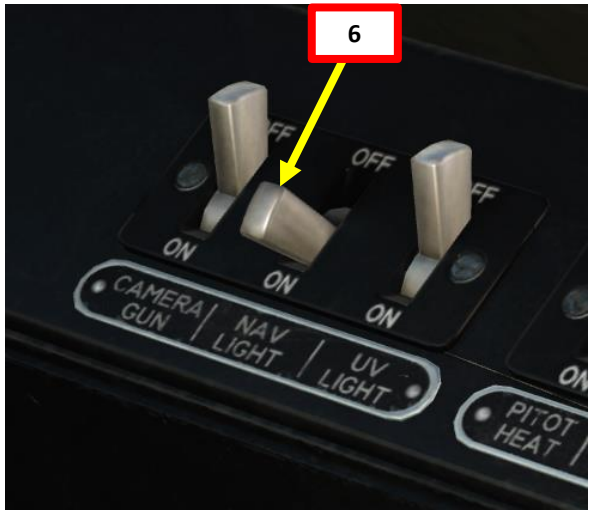


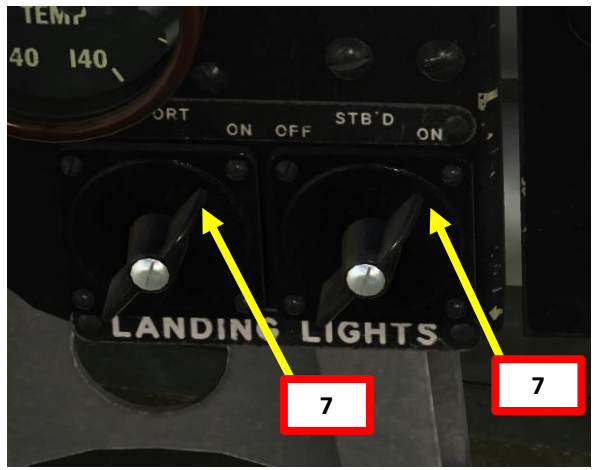


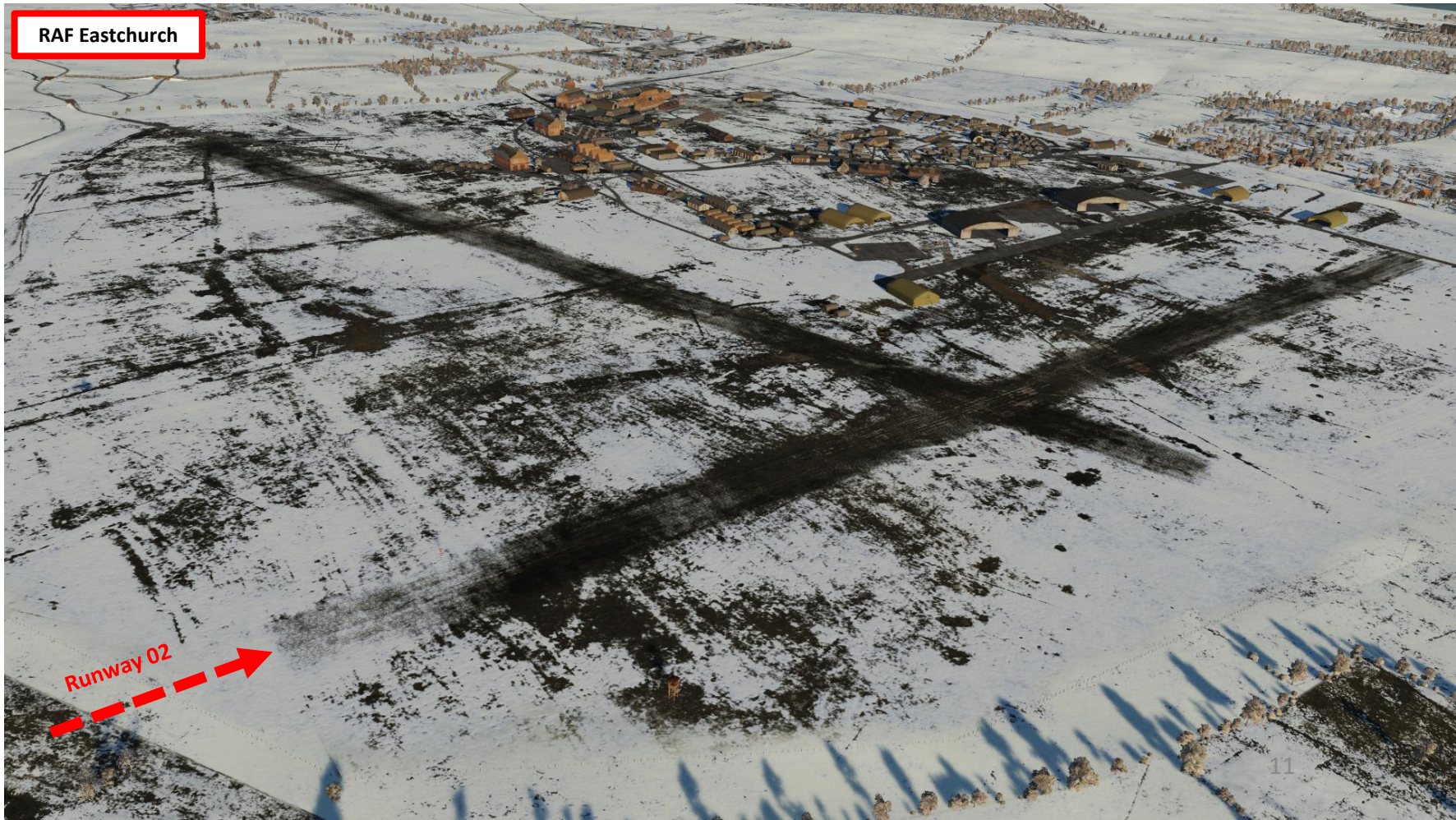
NORMAL LANDING PROCEDURE

6. Set Navigation Lights – As Required
7. Set Landing Lights – As Required
8. Reduce throttle and decelerate to 180 mph.
9. As you reduce throttles below approx. +7 boost, you will hear a warning horn. This horn is triggered when the throttles are below maximum continuous power and the landing gear is not extended.
10. Enter downwind leg at 1000 ft altitude.



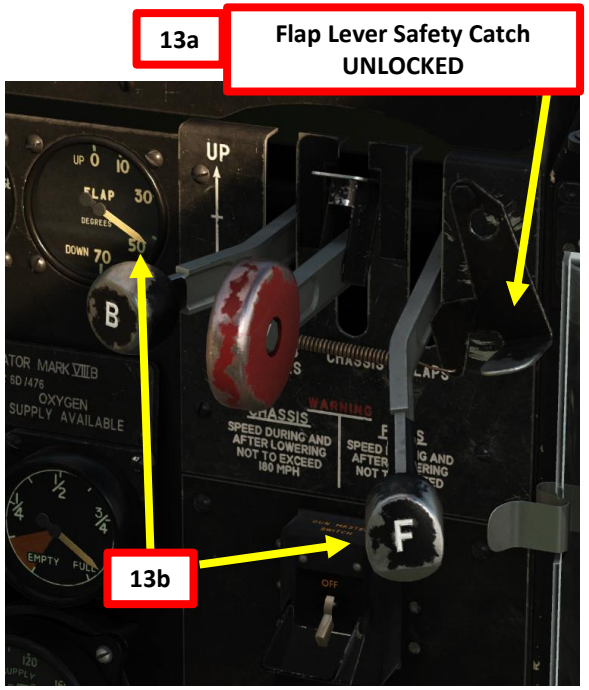


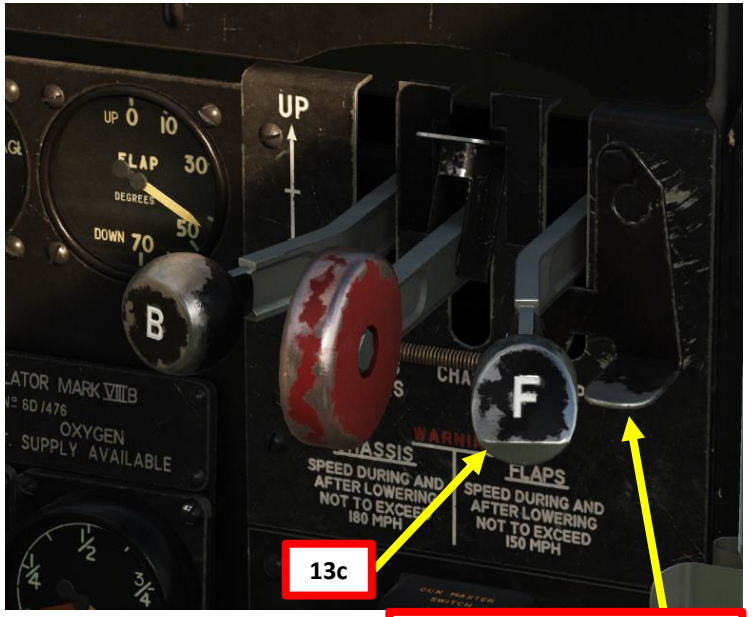




NORMAL LANDING PROCEDURE

11. Deploy landing gear (lever DOWN) when you slow down below 180 mph. Set lever back to NEUTRAL (MIDDLE) once landing gear is fully deployed and locked.
12. Trim the aircraft to a stable attitude with the elevator trim wheel.
13. Once your wingtip is abeam the runway threshold, deploy flaps to 45 deg (at 150 mph or less) and enter base leg with a descending turn.
    a) Unlock Flap Control Lever Safety Catch
    b) Hold Flap Lever – DOWN
    c) When Flap Lever is in desired position (45 deg), set the Flap Lever back to the NEUTRAL (MIDDLE) position.
    - *Note: landing with no flaps can also be performed at light weights, but the approach speed is about 15 mph higher.*
14. Trim the aircraft (nose down) to a stable attitude with the elevator trim wheel.
15. Maintain 150 mph until you have the runway threshold in sight.





11a

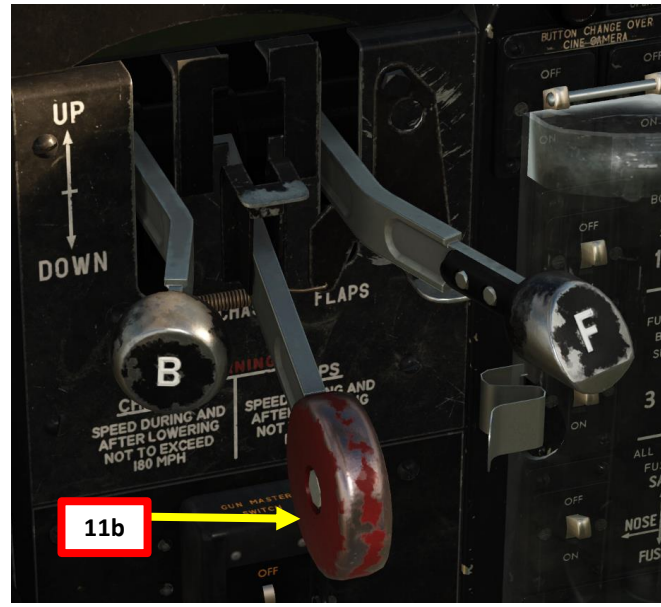
Gear Up

11c

Gear In Transition

11d

Gear Down and locked



NORMAL LANDING PROCEDURE

16. Maintain eyesight of the runway threshold as your turn and enter final at 500 ft altitude.
17. Set Engine RPM Control Levers to set 3000 RPM.
18. Approach speed should be as follows:
    - **With Flaps**: 125 mph
    - **Without Flaps**: 140 mph
    - *Note: at heavy weights, approach speed target should be increased by 10 mph.*
19. When flying over runway threshold, throttle back to set power to IDLE.
20. Gently flare for a three-point landing and maintain attitude until your touchdown.
21. Use rudder pedals to stay straight on the runway as you decelerate.
22. Start using the wheel brake lever in short bursts when rudder movement becomes ineffective.
    - *WARNING: Excessive braking may cause the aircraft to nose over.*
23. Raise flaps and taxi back to the parking area.

Note: *During landing, the aircraft will feel extremely floaty when flaps are deployed. Controlling the speed at which you touch the ground is essential in order to avoid nasty bounces.*

VIDEO DEMO:
https://youtu.be/S8aa9d4qeDs?t=1991

NORMAL LANDING PROCEDURE

NORMAL LANDING PROCEDURE

NORMAL LANDING PROCEDURE

BALKED (REJECTED) LANDING

If you end up having to abort a landing and go around, keep in mind that the aircraft will climb satisfactorily at approx. 140 mph with flaps and undercarriage down at climbing power (3000 RPM at +9 Boost). To go around:

1. Advance throttles to +9 Boost (Takeoff Position)
2. Raise the landing gear immediately. Don't forget to unlock the Landing Gear Control Lever Safety Catch or the lever will stay stuck at NEUTRAL (MIDDLE).
3. Climb at 140 mph.
4. The flaps come up quickly and should not be raised until safe height is reached. Flaps may be kept at 25 deg to complete the circuit; there is then no need to retrim.