Screen-shot *the result of View/Mode/Viewing (alternatively Download…PDF in Firefox), default 100%, start at -0.5/-0.5 cm with the help of the ruler for consistent content placement, size 768x1024.*

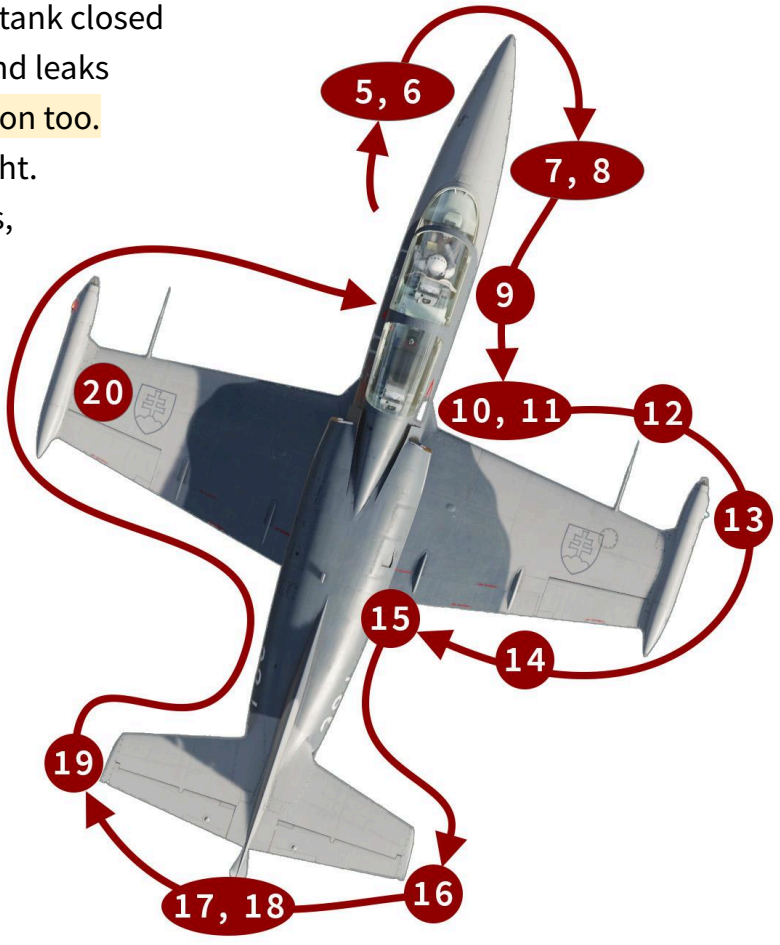
NOTES

- The term “rear cockpit” is used here, just like in the DCS L-39 manual. “Aft cockpit” is used in many other publications and real L-39 flight manuals.
- “Auxiliary Electrical CB Panel” is used in the DCS L-39 manual for the panel with circuit breakers in the front cockpit on the aft right side. The panel is also known as an “auxiliary switchboard” or “aft CB/switch panel” in other sources. It’s always set up properly by DCS (everything ON).
- Occasionally, “HSI” is used for RMI in the resources – likely because RMI has many of the HSI functions. This happens once in the DCS L-39 manual [1] and a few times in the real-life flight manual [3].
- Navigation lights are used in this manner: cold - flashing, hot - steady, taxiing - flashing, TO/flight - steady, after landing until - flashing. Inspired by various sources, among others FAA about lights (AIM) - see Section 3. Airport Operations, section 4-3-23 Use of Aircraft Lights.
- When communicating with ATC the menu does not close and stays in the ATC submenu. When the ground crew is contacted (****) the wrong submenu stays open. Always check whether the communication menu is not already open and also its state and use **F11** and **F12** as needed before or after using **** or **RShift+**.
- Ejection seat setup, checks, pins, pilot weight… is ignored in these checklists.
- ADF (NDB) outer/inner components are positioned to the outer side of the cockpit for outer NDB and to the inner side of the cockpit for the inner one. This means that while the NDB switch on the left side of the cockpit (under the gear indicators) has “O” (as outer) on the left, the ADF frequency selector for the outer NDB on the right console is on the right (outer) side. Simply put, “outer” is always away from you, while “inner” is always closer to you.

PRE-FLIGHT CHECKS before EXTERIOR INSPECTION

These steps are not applicable in DCS. Maintenance personnel completed all pre-flight requirements. Checklist based on [Bonus 3].

1. Chocks: in place (can be added later ****, **F8**, **F4**, **F1**)
2. Fuel/hydraulic leaks: none
3. Fire extinguisher: in place
4. Aircraft: no bank
5. Left nose door: closed and latched
   RIO-3 icing sensor and antennas are under the nose, checked by the maintenance crew. Icing sensor should not be covered.
6. Nitrogen pressure gauge: 120 to 150 kp/cm^2 (low-res in DCS)
7. Right nose door: closed and latched
8. Nosewheel: tire condition and red marks alignment, strut, WOW microswitch free movement, gear down light condition, door is closed, shimmy damper condition, no damage
9. Canopy condition
10. Right air intake: clear, blades condition
    Here you can also check the temperature probe, speed brakes conditions (should be retracted) and IFF antenna.
11. Right gear: tire, light condition, gear well, no leaks, brakes, anti-skid cable, no damage
12. Right pitot tube (primary): uncovered and clean
13. Right wing tank and lights: check condition, tank closed
14. Right wing, aileron, flaps: check condition and leaks
    If pylons/stores are used, check their condition too.
15. Oil should be checked here, but after the flight.
16. Right stabilizer: check conditions, static wigs, vortex generators, trim tab
17. Nozzle: clear, blades condition
18. Rudder: condition
    Trim tab is fixed on L-39, set for the aircraft.
19. Left stabilizer: condition
    Left elevator trim tab works automatically when the flaps are set to landing position.
20. Left wing, gear and pitot tube (stand by), air intake: check/condition/clear (similar to the steps 10–14 in reverse)



END

BEFORE START – Rear Cockpit inspection:

Normally everything is set properly, only things overriding the front cockpit are checked.
It is not possible to switch to the rear cockpit (**2**) if the solo flight was set in the Mission editor.
The steps go around the cockpit left-to-right (CW):

1. **Suit ventilation**: as required, closed for solo flight (N/A in DCS)
2. **Oxygen interconnect**: closed (CW all the way), open for solo flight (CCW)
3. **Oxygen supply valve**: open (CCW all the way), closed for solo flight (CW)
4. **Fuel shut-off** lever: **forward and guarded**
5. Throttle cut-off lock gate: **Open** (N/A in DCS)
6. **EGT Indicator** switch (behind the throttle handle): **FWD**
7. **Air brake** switch: **neutral** (middle, front cockpit has command)
8. **Emergency brake** lever: **disengaged** (fully forward)
9. **Landing gear** lever: **neutral** (middle position, front cockpit has command)
10. Central console **Pressure failure simulation** levers: both in **ON** positions (fully CCW)
11. Central console all **A.H.Failure** switches (**GMK**, **ARK** and two **AGD**): **OFF** (down)
12. **NETW** and **ARMS CB** switches: both **ON**
13. **Emergency levers**: all **OFF** (forward)
14. **Magnetic declination** set (by default OK)
15. All guarded switches and buttons: **Covered**
16. **Canopy** is **closed** and **locked**

In non-solo flights AI will move **ECS and Pressurization** handle as needed when the time is right.
END

BEFORE START – Cockpit inspection:

All these steps are optional in DCS, normally everything is set properly.

1. **Suit ventilation**: as required (N/A in DCS)
2. **Oxygen supply valve**: open (CCW all the way, done by DCS)
3. **Diluter demand** switch: **Normal** (MIX, done by DCS)
4. **Emergency oxygen** switch: **OFF** (done by DCS)
5. **Helmet ventilation**: as required (typically **OFF**, not modelled in DCS)
6. **Fuel shut-off** lever: **forward and guarded**
7. **FLT recorder** (SARPP): **OFF**
8. **Pitot tube** switch: **MAIN** (behind throttle, can be moved forward)
9. **Throttle**: check full and free movement, leave in **STOP** position
10. **Air brake** switch: **front** (air brakes **retracted**)
11. **Spotlight** switch (Landing taxi/lights): **OFF**
12. **Oxygen pressure** indicator: **150 kp/cm^2**
    The pressure can drop to 130 kp/cm^2 when outside temperatures are below 0°C.
13. **Emergency/Parking brake** lever: **neutral** (or **Parking** if no wheel chocks)
14. **Landing gear** lever: **down** (extended)
15. **Accelerometer**: reset (press and hold the **Reset Limits** knob for a second)
16. **Altimeter**: set **0** (**Barometric Pressure QFE Knob**)
17. *Check* instruments condition, clock/time and try the **stopwatch** function.
18. Central pedestal, ***signal flares*** buttons and switch: buttons basic position (out), switch **OFF**
19. Central pedestal, ***armament panel***: all switches **OFF**
20. **ECS and pressurization** handle: **OFF** (back)
21. Main CB/switch panel: all switches **OFF**
22. **Emergency levers**: all **OFF** (forward)
23. CBs on **Auxiliary Electrical CB Panel**: all **ON**
24. **Rear cockpit** canopy is **closed** (it should be locked as well)
    If the rear cockpit canopy is not locked, it will be obvious when the front canopy is locked, but the *Warning lights panel* still shows **Canopy Unlocked**. This is unlikely in DCS.

END

BEFORE START – Systems:

1. **BATTERY/АККУМ** switch: **ON**
   Voltammeter shows **>22 V** (typically **24 V**)
   Warning lights panel – flashing (5): ***Don't Start***, ***Hyd. Syst Fail***, ***Generator***, ***Emergency Generator***, ***Inv. 115 V Fail***
   Warning lights panel – continuous (1): ***Canopy Unlocked***
   Caution & advisory panel – flashing (3): ***Aircondit Off***, ***Inv 3x36V Fail***, ***Eng. Min Oil Press***
2. **Cockpit lights** as needed (**Flashlight** is also available)
3. **Navig. Lights** switch: **Flicker**/**МИГАНИЕ** to indicate active cold aircraft
   a. optionally adjust the brightness if too bright at night
4. **External power** as needed (****, **F8**, **F2**, **F1**) - wait for the yellow indicator on the left console
   Voltammeter shows **27–29 V**
   Use external power when using the systems a lot before the engine+generator are started.
5. **Wheel chocks**: **place** (****, **F8**, **F4**, **F1**) or use the Parking brake, or both
6. **ENGINE/ДВ-ЛЬ** switch: **ON**
   Lights out within 5 seconds (2): **Don't Start**, **Inv 3x36V Fail**
   If ***Don't Start/НЕЗАПУК*** does not go off within 5 seconds do not start the engine!
7. **INVERTOR I & II/ПРЕОБРАЗ. I & II** switches: **ON**
   Lights out: ***Inv. 115 V Fail/Преобраз 115В***
8. **Warning light check** button (right console, behind emergency levers): **hold**
   Check: Warning/Caution & advisory lights, pitot heating, flaps, landing gear panel indicators, central console indicators (flight recorder and de-icing sensor lights are not tested)

Tests in ***steps 9–14*** are done right-to-left (CCW), ending with a few instruments checks:

9. **RT-12 JPT Regulator Test** switch: try **I** and **II** (then return to the central position)
   Caution & advisory panel: continuous yellow ***J.P.T. 700°C*** for **I** and flashing red ***J.P.T. 730°C*** for **II**.
   Note: Due to a bug it always shows **700°C**.
   Note: Works only when both **BATTERY** and **ENGINE** switches are on.
10. **RIO-3 De-Icing Sensor Heating Circuit Check** button: **hold**
    The green light next to the button is on.
11. **Fire Sig. Test** (central console, spring-loaded): try **I** and **II** (hold mouse LB/RB)
    Warning lights panel - flashing: **FIRE**
12. **IV-300 Engine Vibration Test** button: **hold**
    IV-200 engine vibration gauge: **75–100 mm/s**
    Warning lights panel - flashing: **Engine Vibration**
13. *Fuel meter gauge* check: shows current fuel (not 0, after ~1 min after **Engine** switch)
14. *Three-pointer oil and fuel indicator* check: must show exactly 0 for both pressure gauges and some temperature (when off, pressures are below 0 and temperature is 0)

END

BEFORE START – Communications and Navigation:

Normally these are set in the Caucasus map properly for hot start based on the home airfield. For the cold start these need to be set up before the further steps.

If the aerodrome does not have RSBN or NDBs, these are not set. In the Caucasus, ADF is not set by default when hot-starting from Batumi, Gudauta, Kutaisi, Sochi, Soganlug and Vaziani. Reverse ADF is set for Tbilisi - Lochini.

Use one of many frequency/channel lists available for DCS.

1. **R-832M Preset Channel Selector Knob** (Radio channel): to local aerodrome, or as needed
2. ***ADF Control Box*** (RKL-41) as needed, for example:
    a. **ADF Audio** switch: set **ADF** (to hear the NDB codes)
    b. **Far-Near NDB** switch: set **O** (to set the outer beacon)
    c. **ADF Mode** switch: set **TLF** (to hear the NDB codes)
    d. **ADF Function Selector** switch: set **ANT**
    e. **Far NDB frequency** (right): set to outer NDB (two rotary selectors and one fine-tune knob)
    f. Check/hear the code
    g. **ADF Mode** switch: set **TLG**
    h. *ADF tuning indicator*: check **full needle deflection** (signal intensity)
    i. **ADF Function Selector** switch: set **C AUT**
    j. *RKL-41 ADF gauge* (instruments): check the direction to the NDB
    k. **Far-Near NDB** switch: set **I**
    l. Repeat ***steps c-j*** for inner NDB
    m. *When ADF setup is finished:*
    n. **Far-Near NDB** switch: set **O**
    o. **ADF Audio** switch: set **OFF**
    p. **ADF Function Selector** switch: set **OFF**
3. ***RSBN setup*** as needed:
    a. **RSBN Navigation Channel**: set as needed (use the table for available aerodromes)
    b. **RSBN Landing Channel**: set as needed
    c. Optionally check the navigation channel with the **RSBN Listen Callsign** button (with **RSB Volume Rheostat** as needed)
4. **RSBN Field Elevation** knob (ZDV-30): set altimeter pressure (for proper RSBN approach)
5. **PU-26E control panel** (right aft) for GMK-1AE directional gyro check (normally set by DCS):
    a. **GMC Mode** switch: set **MC** (MC/GC - magnetic/gyro compass)
    b. **GMC Hemisphere Selection** switch: as needed (mostly **N** - north)
    c. **GMC Latitude Selector** knob: as needed
6. IFF (N/A in DCS)

END

STARTUP:

1. Check **BATTERY/АККУМ** and **ENGINE/ДВ-ЛЬ** switch: **ON**
2. Cockpit lights as needed
3. **Navig. Lights** switch: **Flicker** to indicate active cold aircraft
4. All other main C/B switches: **OFF** (**INVERTOR I & II** and **RDO** can be left **ON** if used in ***step 7***)
5. **Throttle**: **STOP**
6. *Voltammeter* check: **>22 V** (if not, ask for **ground power** using ****, **F8**, **F2**, **F1**)
   Do not attempt an engine battery start if the battery voltage is less than 22 V!
7. ***Optional:*** To request start-up from ATC:
   a. **INVERTOR I & II/ПРЕОБРАЗ. I & II** and **RDO/РТЛ** switch: **ON**
   b. Check radio channel set (left console)
   c. Request Start-Up via **R-832M**: **Radio button**, **F5**, **F1**, **F3** (**F11**, **F12** to close)
   d. **INVERTOR I & II/ПРЕОБРАЗ. I & II** and **RDO/РТЛ** switch: **OFF**
8. **FLT Recorder** (FDR or SARPP) switch: **ON**
9. **Turbo** (APU) button: uncover and press for 2s; start the stopwatch
   Caution & advisory panel – continuous: ***Turbine Starter*** within 25 seconds
10. **Turbo** button: close the cover, reset the stopwatch
11. **Engine** button: uncover and press for 2s; start the stopwatch
12. **Throttle** to **IDLE** within 3–6 seconds (optionally can be done before ***step 11***)
13. *Check:* If any step fails, SHUT DOWN the engine! (**Throttle** to **STOP**)
    a. *HPC RPM* (needle 1) rises within 8 sec.
    b. Minimum **20% RPM** within **15 sec.**
    c. *EGT* rises within 25 sec.
    d. When *HPC RPM is 30%,* LPC RPM starts to increase
    e. Max *EGT* **685°C** (**600°C** according to [1])
    f. When *RPM 41.5–44.5 %* ***Turbine Starter*** light goes out (**APU should shut off within 45s**)
    g. Idle *RPM* **56±1.5%** reached within 50 sec.
    h. *Oil pressure* at idle at last **2 kp/cm²**
    i. Check *Warning lights* out: ***Hyd. Syst Fail*** (3 blinking and 1 continuous left)
    j. Check *Caution & advisory panel* out: ***Eng. Min Oil Press*** (1 blinking left)
14. **Engine** button: close the cover, reset the stopwatch
15. **Navig. Lights** switch: **Fixed Lighting/НЕПРЕРЫВ** to indicate hot aircraft
16. **Canopy close** and **lock** – ***steps 16+17*** at any time during this checklist
    You can close the canopy by yourself, or ask the ground crew (****, **F8**, **F5**, **F2**).
    Check *Warning lights* out: ***Canopy Unlocked*** immediately – if not, check the rear cockpit
17. **ECS and Pressurization** handle: fully forward to **ECS ON**
    Caution & advisory panel out: ***Aircondit Off*** (takes ~30 seconds, can be checked later)

END

AFTER START:

1. **GENERATOR MAIN+EMERG./ГЕНЕРАТОР ОСНОВ.+ЗАПАС.** switches: **ON**
2. **Ground power**: **OFF** if used (****, **F8**, **F2**, **F2**)
3. *Check Warning lights out:* ***Generator***, ***Emergency Generator***
   9 kW engine-driven generator is connected to the circuit when a) **GENERATOR MAIN** switch is **ON**, b) **NETW** switch in the rear cockpit is **ON**, c) generator voltage is higher than battery voltage, and d) **external (ground) power** source is **disconnected** from the aircraft.
4. *Voltammeter* check: **27–29 V**
5. ***Master caution*** *light* check: **OUT** (after both Generator lights went out)
6. **INVERTOR I & II/ПРЕОБРАЗ. I & II** switches: **ON**
   Check Warning lights out: ***Inv. 115 V Fail***
7. **RDO/РТЛ** switch: **ON**
8. **AGD-GMK** switch: **ON**
   Check ADI and *RMI* instruments coming alive, compare RMI heading with the compass.
9. **MRP-RV** switch: **ON**
   Radar altimeter failure warning goes out (red turns black) and starts self-test (don't wait for it).
   After 1 minute it will finish the self-test and beeps, ***Dangerous Altitude*** warning light goes on.
10. **RSBN** and **SDU** switches: **ON** (unless instructed otherwise)
11. **WING TANKS** switch: **ON**, if ***Wing Tip Tanks*** light goes on, they are empty, switch to **OFF** again
12. **ADF Function Selector** switch: set **C AUT** (unless instructed otherwise)
    Check ADF gauge for NDB direction (if in range).
13. Hydraulic pressure check: **main** (left) **135–150 kp/cm²**, emergency **150 kp/cm²**
    As the aircraft climbs, emergency circuit pressure may drop down to 120 kp/cm^2 at the ceiling.
14. *Caution & advisory panel* out: **Aircondit Off** (~30s after **ECS** fully **ON**, should be out by now)
15. Pressurization check: **UVPD** shows **0.02–0.05** (needle below zero)
16. *Check* all **indicator lights, including** ***Master caution*****, are off**; ***Altitude warning*** can stay on
17. *Check Radar altimeter*: self-test finished, it beeped, pointer went all the way and back to 0.
    If the failure warning flag is RED the instrument is off or not working.
    When it's BLACK it is turned on. Yellow **dangerous altitude lamp** should be on.
    Can be optionally reset: Move the index ("bug") to 0, then set it as desired.
    Reset turns off both **dangerous altitude lamp** and ***Dangerous Altitude*** *warning light*.

END

BEFORE TAXI and **HOT-START on RAMP:**

1. If the ambient **temperature is below +5 °C**, or before the flight in **adverse weather conditions** or **night flights**, **high-altitude flights** or if instructed:
    a. **Pitot Tube Heating Main** and **Stand-By** switches: both **ON** (indicated by green lights)
    b. **DE-ICING SIGNAL** switch: **ON**
    c. **Anti-icing** switch: **MANUAL** while running on ground, **AUTOMATIC** when airborne
    Automatic setting relies on the RIO-3 sensor and air flowing around it, that's why **Manual** position is recommended in icing conditions while on the ground.
2. *Check* control surfaces, flaps cycle, gear/flaps outside indicators (red/white sticks)
3. **Flaps**: **TAKEOFF** position
4. *Check* both **trims** are **reset** (with external stores **elevator trim**: **2 marks aft** [3], p2-8)
5. Engine run-up test? [3], p2-8 (TODO optional steps, shortly, also https://youtu.be/ltKAf5VCkxI?t=1814)
6. **RMI course**: set the heading (true) to the runway, consult the RWY list with true headings.
    a. If it is unclear what RWY is used, do it in ***step 7***.
7. *Check* stopwatch: **OFF**
8. *Check* clock
9. **IFF**: set **ON** (N/A in DCS)
10. *Gunsight check* – as needed:
    a. **ASP-FKP** switch: **ON** (if not visible, check brightness and mirror deflection)
    b. Set as needed: **Gunsight Mirror Depression**, **Target Wingspan** (size), **Target Distance**
    c. **ASP-FKP** switch: **OFF**
11. Request taxi clearance (**R-832M radio button**, **F5**, **F1, F1**)
    a. *Check* that RMI matches the suggested RWY
12. **Wheel chocks**: **remove** – if used (****, **F8**, **F4**, **F2**)
    Hold the **wheel brake** while they are doing it.
13. **Parking brake** check: **neutral**
14. **Spotlight** switch: **TAXI**
15. **Navig. Lights** switch: **Flicker** to indicate taxiing aircraft
16. *Check* area is clear (in order to throttle up)
17. *Check brakes*: hold the wheel brakes, RPM 85%, release the brakes, wait for the plane to start moving, engage the brakes to stop, RPM back to idle

END

TAXIING:

- Taxi with both canopies closed and locked.
- *Check* that the area around the aircraft is clear.
- L-39 uses differential braking. As you use the rudder, the brake on the opposite side starts to be less effective beyond 50% rudder deflection and reaches 0% only at the very extreme position of the rudder. To turn, use the rudder all the way to either side and then pump the brake lever.
- Taxi at lowest practical RPM:
    - To start taxi: ~65% RPM (if it doesn't move at 70%, check the parking brake)
    - To maintain taxi: idle to 60% RPM
    - Turning: ~70% depending on the turn/braking
    - For sharp turns use short bursts of stronger braking, avoid slowing too much.
- Speed on concrete should not exceed:
    - **60 km/h** straight, turns **15 km/h** without external stores, **10 km/h** with them.
    - DCS manual states 30 km/h straight clean, 15 km/h with external stores and 10 km/h before and during turns.
    - Speed limits for grass strips: 15 km/h straight, 5 km/h for turns

END

BEFORE TAKEOFF and HOT-START on the RWY:

1. *Check* both **trims** are **reset** (with external stores **elevator trim**: **2 marks aft** [3], p2-8)
2. **Flaps** check: **TAKEOFF**
3. **Canopy** check: **closed** and **locked**
4. **FLT Recorder** check: **ON**
5. *At the holding position before entering the runway (**skip for the hot start**):*
    a. *Check* the runway for obstacles or approaching planes
    b. Request takeoff clearance (**R-832M radio button**, **F5**, **F1, F1**)
    c. Roll on the runway and center on it, *don't stop before the front wheel is straight*
6. ***Compass*** heading check
7. ***ADF*** direction check (should be behind, if local NDB is tuned), **beacon** as needed (typically **O**)
8. ***RMI*** check (should be aligned with the runway, pointing ahead) GMK-1AE
9. Check GMK alignment: check or press **MC SYCNHR.** button
10. ***Altimeter*** check: as required, or set to zero
11. ***RSBN QFE*** check: matches with the altimeter (if RSBN is used)
12. ***Pitot tube heating*** check: as required
13. In icing conditions: **Anti-icing** switch: **AUTOMATIC**
14. **Navig. Lights** switch: **Fixed Lighting** to indicate takeoff/flight

END

TAKEOFF:

1. *Check* hydraulic pressure (right console)
2. *Check* all **indicator lights, including *Master caution*, are off**; ***Altitude warning*** can stay on
3. **Wheel brakes**: **engage**
4. **Flight timer**: **start** (AChS-1 left button press)
5. **Throttle**: set **TAKE UP** (max power)
6. *Check:*
    a. EGT: **<660°C**
    b. Vibration: **<40 mm/sec** (*Warning lights panel:* **Engine Vibration** *not flashing*)
    c. RPM: **106.8±1%**
    d. Oil pressure: **≤4.5 kg/cm^2**
7. **Spotlight** switch: **LANDING** if needed
   Use **LANDING** only just before the takeoff roll. Don't use it on the ground and during taxi for longer than 3 seconds to avoid lamp overheat (not simulated in DCS).
8. **Wheel brakes**: **release**
9. Maintain direction with brakes up to 60 km/h, after that use the rudder.
10. At **150 km/h IAS**, **rotate** to maintain **10° pitch**
11. Aircraft **airborne at 180–190 km/h** (without externals stores)
12. With positive rate of climb, at **220 km/h IAS** and altitude **>15 m AGL**:
    a. **Landing gear**: set **UP**
    b. *Check* ***three green lights*** (gear) and ***U/C Doors Out*** off
    c. *Check* ***mechanical indicators*** (wings, nose)
13. At **250 km/h IAS** and altitude **>50 m AGL**:
    a. **Flaps**: set **UP**
    b. *Check* electrical (light) and mechanical indicators (wings)
       Flaps are automatically retracted at airspeed 310 km/h.
14. **Spotlight** switch: **OFF**
15. **Throttle**: as needed (e.g. **100% RPM** for normal climb)
16. **Trim**: as required

END

CLIMB

DESCENT

FENCE IN - relevant?

BOMB deployment

ROCKETS deployment

CANNON deployment

LANDING:

TODO - review order

1. TODO: instrument approach?
2. Landing gear down, check mechanical indicators or use spotlights on TAXI (?) to confirm
3. After touchdown
4. Keep aircraft centered
5. Spotlight switch: if LANDING is used, switch to TAXI when slowing down to avoid lamp overheat.
6. Stop the flight timer
7. Flaps up

AFTER LANDING CHECKS

ENGINE SHUT DOWN

1. **Throttle**: set **IDLE**
2. **Wheel chocks**: **place** (****, **F8**, **F4**, **F1**) or use the Parking brake, or both
3. **ECS and pressurization** handle: **OFF** (back)
   It may be switched OFF by the instructor pilot from the rear cockpit before you do it. It's OK.
4. ***Except*** for the **Main CB/switch panel**, **Navig. Lights** and **FTL Recorder**, check all the **other switches** and turn them **OFF** or to the **default position**.
   This includes Pitot heating switches, Spotlight, navigation systems (RSBN/ADF), armament, etc.
5. **Main CB/switch panel** except for **ENGINE** and **BATTERY**: set **OFF**
6. **Throttle**: set **STOP**
   If it does not work, check the rear cockpit (key **2** by default) and disengage the "throttle limiter" (AKA "extendable lock", no bindings). Then you can set the throttle in the front seat to STOP.
7. **Canopy**: **unlock** and **open**
   You can open the canopy by yourself, or ask the ground crew (****, **F8**, **F5**, **F1**).
8. *Wait* until the *engine RPM* pointers reach **0**.
9. **Navig. Lights** switch: **OFF**
10. **ENGINE** and **BATTERY**: set **OFF**
11. **FLT Recorder** switch: set **OFF**

AEROBATICS

- **Minimum speed** at all altitudes: **200 km/h**
- **Inverted** flight time max: **20 s** (then wait **20 s** for the next inverted flight)
-

Loop

Resources

1. *DCS: L-39 Albatros Flight Manual*
2. *FLIGHT MANUAL L-39C*, Albatros N5683D (Serial No. 931529, Aero Vodochody, 1991)
3. *FLIGHT MANUAL L39C AIRCRAFT* by Czech Jet, Inc. (part# T.O. 1T-L39C-1)
4. Flying the L39 short article
5. Lino's checklists (DCS, 2015), multiple checklists, including *L-39 Albatros Amplified Normal Checklists (Startup with explanatory descriptions)*
6. Real L-39 Pilot Start up, Taxi and Takeoff (DCS, also used for one of Lino's checklists)

Bonus resources

1. Real-life series Unboxing Our 1975 Soviet Fighter Jet, Assembling Our L-39 Fighter Jet, But Will It Start? and Test Flying Our L-39 Fighter Jet
2. My L-39 Albatros Training: Jet Transition & Flying the Overhead Break - Part 1
3. L-39 High Performance Civilian Jet - Walkaround Review