**LVTO-SOP**

**Reference Model: LVTO-SOP**

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| **Version** | ***1*** |
| **Description:**  *If the take-off is done in a twin-engine (piston) aircraft, the pilot will accelerate to a speed higher than Vyse (blue line) before rotating the aircraft. The pilot needs to assure that the aircraft will be able to climb to at least 1500 feet AGL after a take-off with an engine failure and to assure that the runway can accommodate an accelerate-stop distance with a rotation at a speed a little higher than Vyse, so that an engine failure before rotation can be accommodated by an aborted takeoff and bringing the aircraft to a stop using only braking action.* | |

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| **Number** | **Details** |
| **LVTO.SOP.100** | **Pre-flight** |
| **LVTO.SOP.110** | **Working instruments**  As part of pre-flight and taxiing checks, the pilot must ensure that all artificial horizons and turn coordinators are working in the correct sense. If any of the artificial horizons or turn coordinators installed in the aircraft is not working, they are to be covered, and the minimum equipment will be two working instruments, of which one has to be an artificial horizon. If the minimum equipment requirement can not be met, a departure in LVO conditions can not take place. In addition, the aircraft must be airworthy and equipped for IFR operations. |
| **LVTO.SOP.120** | **Configure alternate**  Consider adding a departure alternate to the end of the active flight plan in the Garmin avionics device for a quick way to activate the alternate and possibly its arrival procedure in case you need to divert to your take-off alternate. If no suitable take-off alternate is available, add the departure aerodrome to the end of the active flight plan instead. |
| **LVTO.SOP.130** | **Visibility Minima**  The engine startup can only be done if the following visibility minima apply.  For a low visibility take-off (LVTO) with an aeroplane with a runway visual range (RVR) or visibility below 400 m the criteria specified the following provisions apply:  a. The absolute LVTO minimum RVR or visibility for take-off is 125 m. Even with operational credit towards a lower RVR or visibility, the resultant value shall not be lower than 125 m of RVR or visibility.  b. With runway edge lights and centre line marking (day) or runway edge lights and runway end lights OR runway centre line lights and runway end lights, the minimum RVR or visibility for an LVTO operation is 300 m.  b. With runway edge lights and centre line lights, the minimum RVR or visibility for an LVTO operation is 200 m or down to 150 m if the required RVR or visibility will be achieved for the initial part of the take-off run, the midpoint and rollout sections of the runway.  c. For an LVTO operation with an RVR below 150 m but not less than 125 m (1) high-intensity runway centre line lights spaced 15 m or less apart and high-intensity edge lights spaced 60 m or less apart must be in operation; (2) a 90 m visual segment must available from the cockpit at the start of the take-off run; and (3) the required RVR value is achieved for all of the relevant RVR reporting points (if RVR is available) related to the take-off roll.  d. Operational credit towards a lower required RVR or visibility for LVTO operations, with a credit of 1/3rd of the normally required RVR or visibility, can be received through the use of a synthetic vision and/or enhanced vision system (EVS) during the LVTO procedures. The credit will reduce the RVR or visibility of, for example, 300 m as mentioned above to 200m, but will not lower the lowered RVR or visibility requirements to any value below the absolute minimum required RVR or visibility of 125 m. |
| **LVTO.SOP.200** | **Taxiing during LVO operations** |
| **LVTO.SOP.210** | **Lights**  All external lights must be switched on for taxiing and take-off. |
| **LVTO.SOP.220** | **Taxiway centrelines**  All taxiing will be exactly on taxiway centrelines. |
| **LVTO.SOP.230** | **Stop bars**  Stop bars will not be crossed under any circumstances, even with ATC clearance. |
| **LVTO.SOP.240** | **Safe-Taxi**  If Safe-Taxi is available on the aircraft panel or on a portable device, it must be used and if an EVS system is installed, it must be considered for use during taxi. |
| **LVTO.SOP.300** | **Low Visibility take-off (LVTO) operations** |
| **LVTO.SOP.310** | **Unobstructed runway**  The pilot must ensure that the runway surface is clear of obstacles, whether by relying on the airfield operator’s inspection or, in the absence of an inspection, by taxiing the length of the runway within 15 minutes prior to take-off and/or with the use of an EVS system. |
| **LVTO.SOP.320** | **Radio communication**  At an uncontrolled airfield, the pilot must announce his intentions on the VHF frequency most likely to be in use by potential other users of the airfield. This will include a call immediately before applying power or releasing brakes for take-off. |
| **LVTO.SOP.330** | **Runway alignment**  The pilot must ensure that the aircraft is aligned with the middle of the runway and will check that all compasses, DGIs and HSIs are indicating the runway QDM. If a heading bug is available it will be set on the runway QDM. Before applying power, the pilot will ensure that he has identified correctly the runway edges and centreline if available. |
| **LVTO.SOP.340** | **Synthetic Vision**  If Synthetic Vision is available on the aircraft panel it must be switched on. |
| **LVTO.SOP.350** | **Clear windscreen**  Immediately before take-off, the pilot must ensure that the windscreen is clear enough of dew, mist or ice to not limit the view towards the front on take-off. If the windscreen is not clear enough, the departure will be discontinued or delayed. |
| **LVTO.SOP.360** | **Engine monitoring**  During the take-off run, engine parameters will be monitored by the pilot. Any unusual signs will cause the pilot to stop immediately, where possible. In the event of an engine failure or puncture during the take-off run, the throttle(s) will be closed immediately and the aircraft kept straight using nosewheel steering. Maximum braking commensurate with not skidding will be used. |
| **LVTO.SOP.370** | **Cirrus Aircraft LVTO operations**  When as a pilot you are doing a take-off in a Cirrus Aircraft, the Cirrus Airframe Parachute System (CAPS) will be readily available to the pilot for deployment. The pilot will consider deployment in the take-off phase from a height above ground of 500 feet and higher. |
| **LVTO.SOP.380** | **Twin-engine Aircraft LVTO operations**  If the take-off is done in a twin-engine (piston) aircraft, the pilot will accelerate to a speed just below or around Vyse (blue line) before rotating the aircraft, clean up the gear and flaps to assure that the aircraft can climb away to at least 1500 feet AGL while still clearing obstacles by the required margins and in case of an engine failure during take-off procedure. Alternatively, the aircraft should have enough runway available to make a full stop using brakes only on the remaining runway in case of an engine failure before rotation speed. |