



Emergency Procedures uit de POH Aquila

Airspeeds for emergency operation:

Manoeuvring Speed (VA)	112 kts
Best glide flaps up	78 kts
Best glide flaps take-off position	73 kts
Precautionary landing with engine power with flaps down	60 kts
Landing without power with flaps in take-off position	65 kts
Landing without engine power with flaps up	70 kts

3.3.1 Engine failure during take-off run

- Throttle IDLE
- Brakes APPLY as required

3.3.2 Engine failure immediately after take-off (Engine power loss)

- Throttle Full OPEN
- Fuel pump ON
- Airspeed 70 KIAS
- Prop Control HIGH RPM
- Fuel selector SWITCH to fullest tank
- Choke OFF
- CVV HOT
- Ignition switch BOTH

WARNING: If the engine power cannot be restored immediately, an emergency landing must be initiated considering the local conditions and the circumstances of the particular situation.

Before Landing:

- Fuel selector OFF
- Ignition switch OFF
- Alt/Battery switch OFF

WARNING: If BAT switch is in OFF position, stall warning system is inoperative!

3.3.3 In-Flight Engine failure (engine roughness)

- CVV HOT
- Fuel pump ON
- Ignition Switch SWITCH through positions L-BOTH then R-BOTH
- Throttle Do NOT change position

If roughness continues:

- Throttle REDUCE to minimum required for flight
- Perform precautionary landing

Loss of oil pressure

Check oil temperature, if loss of oil pressure below the green arc occurs and the oil temperature remains normal
-> Land at the nearest airfield

If the loss of oil pressure below the green arc is accompanied by a rise in oil temperature:

- Throttle REDUCE to minimum required for flight
- Perform precautionary landing

WARNING: Be aware that sudden engine failure may occur any time!!

Loss of fuel pressure

- Fuel pump ON
- Fuel selector SWITCH to fullest tank

Note: the fuel pressure will not be restored after switching fuel tanks until empty fuel lines are refilled again.
This process may require up to eight seconds.

If the low fuel pressure warning light is still illuminating:

Land at the nearest airfield.

WARNING: Be aware that sudden engine failure may occur any time!!



Engine restart procedure with stopped propeller

- Non-essential electric equipment OFF
- BAT Switch ON
- Prop control HIGH RPM
- Fuel Selector SWITCH to fullest tank
- Fuel pump ON
- Throttle (hot engine) 2 CM opened
(cold engine) IDLE (pull CHOKE)
- Ignition switch START

When power is restored:

- Oil Pressure CHECK
- Choke OFF
- Electrical equipment SWITCH ON as required
- Oil temperature CHECK

Note: the engine can be started also by wind milling if the airspeed is approx. 120 kts. The altitude loss in glide to reach this airspeed is approximately 1000 FT / 300 meter.

Restart procedure with propeller in wind milling condition

With engine power off and airspeeds above 60 kts the propeller is auto rotating.

- Airspeed 76 kts
- BAT switch ON
- Fuel selector SWITCH to fullest tank
- Prop control HIGH RPM
- Fuel Pump ON
- Ignition switch BOTH
- Throttle (hot engine) 2 CM opened
(cold engine) IDLE (pull CHOKE)

When power is restored:

- Oil Pressure CHECK
- Choke OFF
- Electrical equipment SWITCH ON as required
- Oil temperature CHECK

3.3.4 Power-off landing (emergency landing without engine power)

- Airspeed flaps: Landing position 60 KIAS
Take-off position 65 KIAS
Cruise position 70 KIAS
- Fuel selector OFF
- Ignition switch OFF
- Seatbelts and harnesses TIGHT
- COM (ATC) REPORT location and intention
- ALT/BAT switch OFF

WARNING: If BAT switch is in OFF position, stall warning system is inoperative!



3.4 Precautionary landing with engine power

Note: It may be advisable to make an off-airport landing while power is still available, particularly if the continuation of the flight represents a danger for the occupants or the aircraft. Reasons for that may be unexpected bad weather conditions, low fuel, technical trouble, or the physical condition of an occupant deteriorates strongly.

- Locate suitable field CONSIDER wind direction, terrain and obstructions
- Seat belts and Harnesses TIGHT
- Initiate descent
- Selected field FLY OVER (Altitude > 500 ft), checking conditions (wind, obstructions, slope)
- CHECK before turning final
 - Throttle AS REQUIRED
 - Prop Control HIGH RPM
 - CVV ON
 - Fuel Pump ON
 - Flaps Extended
 - Airspeed 60 KIAS
- Touch down with lowest possible airspeed.
- After touchdown:
 - Brakes APPLY as required
 - Fuel selector OFF
 - Ignition switch OFF
 - ALT/BAT switch OFF

3.5 Smoke and fire

3.5.1 Engine fire on ground

- Fuel selector OFF
- Throttle FULL OPEN
- ALT/BAT switch OFF
- Ignition switch OFF
- Aircraft EVACUATE

3.5.2 In-Flight engine fire

- Fuel selector OFF
- Airspeed 90 KIAS
- Flaps TAKE-OFF position
- Throttle FULL OPEN
- Cabin Heat OFF
- Canopy slide-window FULL OPEN
- Proceed with power-off landing (3.3.4)

3.5.3 Electrical Fire and Formation of Smoke on ground

- ALT/BAT Switch OFF
- if engine is running:
- Throttle IDLE
 - Fuel selector OFF
 - Ignition switch OFF
 - Canopy OPEN
 - Fire Extinguisher (if installed) ACTIVATE as required

3.5.4 In-Flight Electrical fire and formation of smoke

- BAT Switch OFF
- Cabin vents OPEN
- Canopy slide windows FULL OPEN
- Fire Extinguisher ACTIVATE as required

3.5.5 In-Flight Cabin Fire

- BAT Switch OFF
- Cabin Vents OPEN
- Cabin Heat OFF
- Fire Extinguisher (if installed) ACTIVATE as required



3.6 Inadvertent encounter of icing conditions

If the event of an inadvertent icing encounter, use following procedure:

- CVV ON
- Propeller RPM INCREASE
- Cabin Heat ON
- Immediately leave the region which the icing occurred. (Change flight altitude and/or turn back)
- Move the control surfaces periodically, to keep them movable.

CAUTION: With ice accumulation on the wing leading edge, stalling speed increases.

CAUTION: With ice accumulation on the wing leading edge, the readings of the airspeed indicator, of the altimeter, and of the vertical speed indicator may be incorrect. The stall warning system may be inoperative or may not work correctly.

3.7 Spin recovery procedure

- Rudder APPLY FULL DEFLECTION OPPOSITE to direction of rotation
- Throttle retard to IDLE
- Elevator control move forward to NEUTRAL, far enough to terminate stall
- Rudder return to NEUTRAL, as soon as the rotation stops
- Ailerons return to NEUTRAL
- Flaps RETRACT if extended
- Rudder return to NEUTRAL as soon as the rotation stops
- Elevator control Cautiously PULL OUT of the dive by applying back pressure on the stick

Make a smooth recovery from the dive to regain level flight altitude. Do not exceed VNE.

Warning: During recovery of spinning the sequence of actions stated above is mandatory!

3.8 Power off gliding

Depending on the flight altitude and the current wind conditions, the achievable gliding distances may be different to reach a suitable field or a close air field.

For an optimal power off gliding, consider the following:

- Flaps RETRACTED
- Airspeed 78 KIAS
- Demonstrated glide ratio 14, this means, a glide distance of 4 km results in an altitude loss of 1000 ft.

NOTE: Headwinds or tailwinds have a great influence on the achievable gliding distance.

3.9 Landing with a flat tire

For a landing with a suspect or defective tire use the following procedure:

- Flaps Landing Position
- Perform touch down on that side of the runway that is opposite to the defective tire, to have the complete width of the runway to correct direction changes caused by the defective tire.
- Perform touch down with intact main tire first. Touch down nose wheel as soon as possible to obtain a better controllability of the aircraft on ground.
- While taxiing, move aileron control fully to the side of the intact main tire, to unload the defective one.
- When landing with a flat nose wheel tire: Touch down with minimum speed.
Hold nose wheel off the ground as long as possible.

3.10 Electrical power supply system malfunctions

3.10.1 Complete failure of electrical system

- Battery circuit breaker RESET if tripped
- ALT-BAT Switch CHECK if ON
- If power is not restored Land at the nearest airfield if practical



3.10.2 Alternator Failure

Alternator warning light illuminates:

- Alternator switch Switch OFF then ON
- Alternator circuit breaker RESET if tripped

If the alternator warning light still illuminates:

- Alternator switch OFF
- Cabin light OFF
- Landing light OFF
- Anti Collision light OFF
- NAV-Lights OFF
- Devices connected at the 12 VDC OFF

- Observe the voltmeter and ammeter readings.
- Land at the nearest airfield if practical.

NOTE: The battery is able to supply the electrical system with power for approx. 90 minutes with an average rate of discharge of 8 Ampere-hours.

3.10.3 Low Voltage Indication

A) Low voltage indication ON GROUND (needle on green-red shaded arc or below)

- Engine speed Increase RPM until the needle moves into the green arc (RPM not above 1350)
- All non essential equipment Turn off, until the needle moves into the green arc region
- If the needle remains on the green-red shaded arc or below and the ammeter shows discharge (needle to the left side) Do not fly before the problem is eliminated

B) Low voltage indication in flight (needle on green-red shaded arc or below)

- All non essential equipment Turn off, until the needle moves into the green arc region
- If the needle remains on the green-red shaded arc or below and the ammeter shows discharge (needle to the left) Alternator is defective, proceed in accordance with par. 3.10.2

C) Low voltage indication while landing (needle on green-red shaded arc or below)

- After Landing Proceed in accordance with 3.10.3 A

WARNING: Whenever the needle of the voltmeter is within the RED arc, land at the nearest airfield to eliminate the problem before continuing flight.

3.11 Flap control system malfunctions

Flap position indicator or flap actuator malfunctions.

- Flaps circuit breaker RESET, if tripped
- Flap position CHECK visually at the left wing
- Airspeed Within the white range on the airspeed indicator
- Flap switch Switch through all positions

If the flap actuator is inoperative or the flap position indicator reading is incorrect, the landing approach should be conducted with a safe airspeed for the current flap position.

WARNING: Landing with flap not in the landing position increases the stalling speed and the landing distance.

3.12 Trim control system failures

3.12.1 Trim system inoperative

- Trim actuator circuit breaker RESET, if tripped
- Trim switch PRESS nose UP and then nose DOWN several times

NOTE: An inoperative trim system does not affect the aircraft controllability. However the control stick forces are considerably higher and may reach up to 100 N.

- Land as soon as practical.



3.12.2 Trim actuator does not stop as desired

- Control stick HOLD in position
- Trim actuator circuit breaker PULL
- Trim switch CHECK, whether pressed, jammed, etc.

If the problem is obvious, and can be solved:

- Trim actuator circuit breaker RESET

NOTE: The trim setting from full nose down to full nose up trim position, or vice versa, takes approx. 8 seconds.

If the problem can not be eliminated:

- Land at nearest airfield

3.13 Avionics Malfunctions

3.13.1 Complete Avionics failure

- Avionics master switch SWITCH off, then ON. The avionics main switch is an automatic circuit protective switch. If the switch trips again: land at the nearest suitable airfield.

3.13.2 Receive mode failure of COM equipment

- Push to talk switch CHECK pilot's and co-pilot's switches whether pressed, jammed, etc.
CHECK also transceiver display.
CHECK connectors
- Head set SWITCH Off squelch momentarily. If no noise is audible:
CHECK headset connectors.

3.13.3 Transmit Mode Failure of COM equipment

- "T" Symbol CHECK whether displayed while transmitting.
 - Selected frequency CHECK
 - Microphone CHECK, if necessary replace headset.
- If the problem can not be eliminated, set transponder code to 7600 if required.

3.14 Starter Malfunction

During engine start, the starter does not decouple from engine (a continuing and excessive howling tone is audible).

- Throttle IDLE
- Ignition switch OFF
- Repair damage before conducting planned flight.

3.15 IN-FLIGHT FAILURES AND MALFUNCTIONS

3.15.1 Self-Actuating Release and Opening of the Canopy in flight

In the case of a self-actuating release and opening of the canopy in flight, a stationary canopy opening angle of about $20^\circ \pm 10^\circ$, depending on the flight condition, is reached where the aerodynamic forces exerted on the canopy are in equilibrium. Since the canopy is opened forwards, the canopy can not be torn off by the air flow as a consequence of the self-actuating opening in flight. Even though the airflow conditions around the aircraft changes considerably with an open canopy in flight, the aircraft remains fully controllable. Initial flight attitude changes can be easily corrected. Do not unbuckle the seat belt in order to close the canopy. During solo flights, carefully try to close the canopy without neglecting the flight tasks and pilot responsibilities. If this is not possible, continue the flight with the open canopy and land at the nearest airfield.

- Keep calm, an imminent danger is not given.
- Flight Attitude Stabilize flight attitude, establish a stationary horizontal level flight condition considering the actual conditions.
- Airspeed 65 – 75 KIAS
- Surrounding Airspace Check for obstacles and other traffic.
- Canopy Close and lock canopy in flight if possible. Check the canopy locking and the position of the Canopy Locking Lever continuously until landing.
If this is not possible, continue flight with open canopy and land at the nearest airfield.