



CZECH AIRCRAFT WORKS SPORTCRUISER
EXPANDED EMERGENCY CHECKLISTS

Rev. 07/09

STOP! Don't tackle Emergency Procedures before you've had some experience in the aircraft. After you've had a few lessons and your instructor indicates that it's time to start learning emergency procedures (or "E.P.'s," as they're often called) then begin the learning process outlined below. If you're interested in flying but haven't started flying lessons then it might be interesting to thumb through these checklists, but trying to learn them before you have experience in the plane is likely to be intimidating and frustrating. What looks very difficult now will be normal and manageable at the right time and with your instructor's help.

Checklists can't be developed for every possible situation, so these are only guidelines. You will have to exercise good judgment as to the safest course of action depending on your immediate situation. Vector Sport Aviation cannot and does not warrant that these checklists are the safest course of action in any emergency, so use them at your own risk. If you disagree with the content of any of these checklists, please contact us at vsa@vectorsportaviation.com.

As Pilot In Command (PIC), you always have the authority to deviate from a checklist or even an FAA rule or clearance for safety reasons. If you are going to deviate from an FAA clearance, the FAA requires that you attempt communicate your intention by declaring an emergency to the air traffic controller and that you submit a report afterwards if requested.

The following levels of written advisories are used in this manual. These are typical for the aviation industry.

- **WARNING** – Injury or loss of life may result from not heeding this warning.
- **CAUTION** – Damage to equipment may result from not heeding this caution.
- **NOTE** – Essential to emphasize and may be safety related.

The steps to handling any emergency are:

1. Fly the Plane! This is ALWAYS your #1 priority! (For emergencies on the ground, this means that you bring the aircraft to a safe stop.) Perform any checklist only when the aircraft is under control.

2. Identify and announce the emergency. Say "I have a _____." This will get your brain thinking about procedures and help you to begin the correct procedure. It's more important to take the right action than to act quickly because a hurried action may be inappropriate and result in a more serious situation. So develop the habit of responding to an unexpected event by first correctly identifying it.

3. Do the RECALL items. If there is a checklist for the malfunction, perform the items in BOLD FACE from memory.

4. Pick Up the Checklist. Your emergency checklist should always be within easy reach. Pick it up and begin it from the top. When something goes wrong, it is more difficult to think and remember your checklists so starting from the top will make you review the recall items before performing the reference items.

E.P. checklists have two types of items:

1. RECALL items – these are time-critical steps which must be done from memory. These items are printed in Bold Face type and are always the first steps in an emergency procedure. Each pilot is required to have memorized all recall items.

2. REFERENCE items – these steps are done while reading the checklist.

When memorizing the recall items on these checklists, do not memorize only the words but memorize and practice the "flows." That is, memorize where your hands and eyes go when you are doing the checklists. The best place to memorize the flows is in the aircraft where you can imagine the situation and practice moving your hands and eyes through the flow. However, most people's time in the aircraft is limited – the plane isn't readily available and you don't have much time when you are in it just to sit there and learn. So maximize your time in the plane by preparing ahead of time.

First, go through these procedures to understand how to respond to these emergency situations and why the

checklists are written this way. If you have a question, ask your instructor or e-mail vsa@vectorsportaviation.com.

If the procedures are unclear, you may find it helpful to look at a more detailed view of the cockpit on www.vectorsportaviation.com. After you understand the procedures, look at the flow diagrams (the pictures of the cockpit with the numbered items) and practice remembering the flows by "chairflying" them. To chairfly a procedure, print a copy of the checklists, sit in a place where you can concentrate and imagine yourself in the plane. Then think through the procedures step by step, imagining what you will say, where you will look, and what you will do with your hands. (You can see how this would be impossible to do until you've had some experience flying the aircraft.)

It is recommended that you do not reset a tripped circuit breaker in flight. However, the PIC may reset a circuit breaker if the tripped breaker has a significant impact on the safety of flight. You must wait a short time (2-3 minutes) to allow the circuit breaker to cool before resetting it.

WARNING: Do not reset a tripped fuel pump circuit breaker.

Engine Fire On Ground

Both of the "Engine Fire" procedures put out the fire by starving the engine of fuel. The first two steps of this procedure depressurize the fuel lines and burn all available fuel safely inside the engine.

Fuel selector OFF

Throttle..... full forward

AFTER ENGINE STOPS:

Ignition switch OFF

IF TIME PERMITS:

Radio call for firefighting assistance

If on a controlled field, tell the controller your position and situation before turning off the electrical power.

Master switch OFF

Abandon Aircraft



"Engine Fire On Ground" checklist flow

Engine Fire In Flight

An engine which has been shut down because of a fire is never restarted, so the "Engine Fire In Flight" checklist will always become one long sequence with the "Emergency Landing – No Power" checklist. Therefore the two checklists should be studied and practiced together. They are separate checklists because other events such as an engine failure may also lead to an emergency landing without power. The "Communicate" and "Prepare for landing" items below are from the "Emergency Landing – No Power" checklist. The sequence may be thought of like this:

1. **Stop the fire and smoke**
 Fuel selector – OFF
 Throttle – full forward
 Heater – OFF
2. **Fly the Plane**
 Select landing area and turn
3. **If you haven't put out the fire, continue trying**
 Airspeed – 100 knots to extinguish fire
4. **Communicate if you have time**
 Transponder – 7700
 Radio – Mayday call
5. **Prepare for landing**
 Seat belts – tight
 Canopy – latched
 Fuel selector – OFF
 Flaps – as required
 Master switch – OFF
 Ignition switch – OFF



“Engine Fire In Flight” checklist flow

(1) Fuel selector OFF

(2) Throttlefull forward
 This will quickly and safely burn all available fuel inside the engine. Maintain a level flight attitude and anticipate the need to set a glide attitude when the engine stops.

(3) Heater OFF
 This step is to keep smoke out of the cockpit.

(4) Select landing area and turn
 Step #4 is “Flying the Plane” – your highest priority. Doing checklists is distracting but do not allow performance of the remainder of the checklist to prevent you from guiding the plane to a safe landing.

(5) Airspeed 100 knots to extinguish fire
 If the fire continues and *if you have sufficient altitude and a place to land*, you may increase airspeed in an attempt to “blow out” the fire. It is estimated by the manufacturer that 100 knots is an appropriate speed.

Airspeed..... 65 knots
 When the fire is out or you no longer have sufficient altitude, gently put the aircraft back into a 65 knot glide attitude and trim to 65 knots while flying to your chosen landing site.

PERFORM “EMERGENCY LANDING - NO POWER” CHECKLIST

Electrical Fire

Master switch OFF

The master switch removes power from the main electrical bus and depowers all electric equipment in the aircraft but does not affect engine operation. Only the throttle, choke, ignition switch, GPS and airspeed indicator will still be working. You will not be able to move the flaps.

Note: The EFIS will shutdown automatically after a delay of 20 seconds. However, it has a backup battery and you can keep it from shutting down by pressing any button on the EFIS.

Cabin heat..... OFF

This prevents smoke from the engine compartment from entering the cockpit.

AFTER FIRE IS OUT:

Cabin heat & vents OPEN

IF FIRE IS OUT AND ELECTRICAL POWER IS REQUIRED:

Consider carefully whether you need electric power to land safely. Since the SportCruiser is prohibited from flying in IMC, you should not need electric power in most situations. Remember that you can land at a controlled field without radio communication by receiving light signals from the tower.

You may want to turn on power for:

- Pilot’s flight instruments when a safe landing cannot be made solely by outside visual reference. If the pilot’s flight instruments cannot be used then use the flight instrument display screen on the GPS.
- Radio communication and exterior lights, especially if going into a controlled field at night.
- Any time the PIC determines that electric power is necessary for safety flight.

All radio/electrical switches OFF

Turn off all individual switches so that no equipment will come on when the Master switch is turned on. This includes the Garmin 430W GPS/NAV/COM and the entire row of switches below the EFIS.

Note: All of the switches below the EFIS are circuit breaker switches except for the “Instruments” and “Avionics” switches. When turning off electrical

switches, note whether any of these have automatically tripped. This may be a clue as to the source of the fire.

Circuit breakers check (do not reset)
Refer to the discussion on page 1 regarding resetting circuit breakers.

Master switch ON
After turning on the Master switch and after each subsequent switch, pause to determine whether the fire has returned. If smoke is again detected, turn the last switch OFF again and leave it off.

Avionics switch as required
If you have turned off all individual avionics switches except the EFIS, then turning on the avionics switch should power only the EFIS.

Instruments switch as required
This powers only the engine instruments.

Necessary radio/electric switches ON
(One at a time with delays to identify the source of the fire.)

Engine Roughness

Carburetor heat ON
If the cause of the roughness was ice in the carburetor, the engine may begin running smoothly within 1-3 minutes after turning the carburetor heat ON. If the engine runs smoothly at all power settings, you may continue the flight at your discretion with the carburetor heat ON.

Fuel pump ON

Fuel selector switch tanks

Throttle reduce to minimum necessary

Land at nearest suitable airport.

If the engine is still running roughly, assume that sudden engine stoppage is imminent and fly to a position from which you can make a no-power approach to a suitable field.

Engine Failure During Takeoff

Any unusual engine indications, roughness, or failure to generate normal power during the takeoff roll should be considered an engine failure and the takeoff should be discontinued.

Note: The engine's normal "static rpm" (full power applied with the aircraft stopped on the ground) is approximately 4850 rpm. The full-power engine RPM increases as the aircraft's speed increases. Different aircraft will have different static rpm's depending on the propeller type, propeller pitch adjustment, and ambient conditions.

Throttle..... IDLE

Brakes apply

WARNING: The engine may begin running smoothly after power is reduced and during subsequent run-up but do not attempt another takeoff. Maintenance action is required!

Engine Failure After Takeoff

This checklist is organized in the following manner:

1. Fly the Plane!

- Airspeed – 65 knots
- Select landing area and turn
- Flaps – as required

2. Prepare for landing.

- Fuel selector – OFF
- Canopy –latched
- Master switch – OFF



"Engine Failure After Takeoff" checklist flow

NOSE DOWN!

If you lose power when climbing after takeoff, an immediate and dramatic nose-down pitch is required to maintain flying speed. Immediately set a 65 knot glide attitude. If you set the right sight picture then your speed will eventually be 65 knots. This step will not be difficult after you have practiced it a couple of times.

(1) Airspeed 65 knots

Remember that you will not glide as far if you are either above or below this speed so, unless you are flaring to land, pulling the nose up to stretch your glide will actually increase your rate of descent and have the effect of making you land sooner.

(2) Select landing area and turn

If you have sufficient runway in front of you, land straight ahead.

WARNING: If you do not have sufficient runway ahead of you and are still below pattern altitude, do not attempt to turn back to the takeoff runway. Choose a landing area ahead of you within approximately 30 – 45° of your current heading.

Making any turn will require some sacrifice of either altitude or airspeed because of increased induced drag. Since it is imperative that you maintain your best glide speed, you must give up some altitude while turning and this limits how far you can turn. Pilots who attempt to make too great a turn for their altitude often fail to maintain a safe airspeed, resulting in a stall and loss of control of the aircraft.

(3) Flaps as required

Lower flaps only when you are definitely within range of your landing area, i.e., “you have the field made.”

While holding 65 knots, lower or raise the flaps in small

increments to adjust your glide angle. Each time you lower the flaps, you will have to lower the nose slightly to maintain airspeed and this will increase your descent rate. To stretch your glide, you can raise the flaps incrementally and raise the nose to maintain 65 knots.

These last three items (4 – 6) can be accomplished in any order but should be done before touching down on an unprepared surface.

(4) Fuel selector OFF

Securing the fuel selector and master switch helps prevent fuel leaks and electric sparks/fires after touchdown.

(5) Canopy latched

(6) Master switch OFF

WARNING: Turning off the master switch will prevent further use of the flaps.

Engine Failure In Flight

Unless power is regained, the “Engine Failure In Flight” checklist will become one long sequence with the “Emergency Landing – No Power” checklist and so the two should be studied and practiced together. They are separate checklists because other events such as an engine fire or severe vibration may also lead to an emergency landing without power. The “Communicate” and “Prepare for landing” items below are from the “Emergency Landing – No Power” checklist. The sequence may be thought of like this:

A. Fly the Plane!

Airspeed – 65 Knots & Trim

Select a landing area and turn

B. Restart the engine – if you have time

Throttle – IDLE

Choke – OFF

Fuel selector – switch tanks

Carburetor heat – ON

Fuel pump – ON

Ignition switch – START

C. Communicate – if you have time

Transponder – 7700

Radio – Mayday call

D. Prepare for landing

Seat belts – tightened

Canopy –latched

Fuel selector – OFF

Flaps – as required

Master switch – OFF

Ignition switch – OFF



Engine failure and restart checklist flow

Your first priority is getting the plane safely onto a suitable landing area. The first two steps (flying the plane) are the most important and the others must not interfere with these.

(1) Airspeed 65 knots

Gently pitch to a 65 knot glide attitude and trim to maintain 65 knots. In normal cruising flight, gently raise the nose to trade airspeed for altitude and intercept a 65 knot glide. Then trim the plane for 65 knots. If you don't trim the plane, you won't stay at 65 knots and you won't glide as far. Remember that you will not glide as far if you are either above or below this speed. So unless you are flaring to land, pulling the nose up to stretch your glide will increase your rate of descent and have the effect of making you land sooner.

(2) Select landing area and turn

IF TIME PERMITS:

These next six items (3-8) are an attempt to restart the engine and should be performed only if you have time and have reason to believe that the engine may be useable. They are presented not in order of importance but in a flow pattern which makes it easier to remember and perform quickly.

(3) Throttle IDLE

(4) Choke..... OFF

Inadvertent activation of the choke lever may have caused the engine to stop and will prevent it from restarting.

Note: The choke is automatically deactivated when the power lever is positioned forward. If the choke lever was moved aft (ON) while the power lever was forward, the choke would likely interfere with engine performance only after the power lever was subsequently retarded.

(5) Fuel selector switch tanks

The engine may have failed because of a blockage in one fuel line or because one tank is empty.

(6) Carburetor heat ON

The carburetor heat will be more effective if it is used quickly, before the engine heat dissipates.

(7) Fuel pump ON

(8) Ignition switch START

Because of its high compression ratio, the Rotax engine will not windmill.

IF ENGINE DOES NOT START:

Perform "Emergency Landing – No Power" checklist

IF ENGINE STARTS:

Land as soon as possible.

Emergency Landing – No Power

IF TIME PERMITS:

Transponder code 7700

Setting 7700 will immediately bring your aircraft to the attention of all radar controllers in your area. You can expect that they will attempt to contact you on the radio.

Radio Mayday call

This might sound something like: "Mayday, mayday, mayday. [callsign] has a engine failure and is making a forced landing at [position.]

Do not allow communication to prevent you from performing the "Prior to Landing" items. Complete the checklist and respond to radio calls only if you have time.

PRIOR TO LANDING:

Seat belts tightened

Canopy latched

Fuel selector OFF

This helps to prevent fuel leaks after landing.

Flaps as required

When landing is assured, i.e., you've "got the field made," use the flaps to adjust your rate of descent. Lowering the flaps incrementally will shorten your glide distance and raising them will increase it. When you lower the flaps you will have to lower the nose attitude slightly to maintain 65 knots and when you raise the flaps you will have to raise the nose slightly.

Master switch OFF

Securing the master switch will remove power from all electrical equipment.

WARNING: You will not be able to move the flaps with the master switch OFF.

Ignition switch OFF



Emergency Landing – No Power

NOTE: **BOLD** emergency checklist items must be memorized and performed from memory

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CZAW SportCruiser Emergency Checklists

Engine Fire On Ground

Fuel selector OFF
Throttle.....full forward

AFTER ENGINE STOPS:

Ignition switch OFF

IF TIME PERMITS:

Radio call for firefighting assistance
Master switch OFF
Abandon aircraft

Engine Fire In Flight

Fuel selector OFF
Throttle.....full forward
Heater OFF
Airspeed..... 100 knots to extinguish fire
Airspeed..... 65 knots
Perform "Emergency Landing - No Power"
checklist

Electrical Fire

Master switch OFF
Cabin heat..... OFF

AFTER FIRE IS OUT:

Cabin heat & vents OPEN

IF FIRE IS OUT AND ELECTRICAL POWER IS REQUIRED:

Radio/electrical switches OFF
Avionics switch OFF
Instruments switch OFF
Circuit breakers check (do not reset)
Master switch ON
Avionics switch as required
Instruments switch as required
Necessary radio/electric switches ON
(One at a time with a delay to identify the source of the fire.)

Engine Roughness

Carburetor heat ON
Fuel pump ON
Fuel selector switch tanks
Throttle reduce to minimum necessary
Land at nearest suitable airport.

WARNING: Use these checklists only in accordance with the "Expanded Emergency Checklists" available at vectorsportaviation.com

CZAW SportCruiser Emergency Checklists

Engine Failure During Takeoff

ThrottleIDLE
Brakes apply

Engine Failure After Takeoff

NOSE DOWN!

Airspeed 65 knots
Select landing area and turn
Flaps as required
Fuel selectorOFF
Canopy latched
Master switchOFF

Engine Failure In Flight

Airspeed 65 knots
Select landing area and turn

IF TIME PERMITS:

ThrottleIDLE
ChokeOFF
Fuel selector switch tanks
Carburetor heat ON
Fuel pump ON
Ignition switch START

IF ENGINE DOES NOT START:

Perform "Emergency Landing – No Power"
checklist

IF ENGINE STARTS:

Land as soon as possible.

Emergency Landing – No Power

IF TIME PERMITS:

Transponder code 7700
Radio Mayday call

PRIOR TO LANDING:

Seat belts tightened
Canopy latched
Fuel selectorOFF
Flaps as required
Master switchOFF
Ignition switchOFF

WARNING: Use these checklists only in accordance with the "Expanded Emergency Checklists" available at vectorsportaviation.com
NOTE: **BOLD** emergency checklist items must be memorized and performed from memory
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