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3 Emergency Procedures

3.1 Introduction

Section 3 describes operations and procedures for emergency situation solutions that could possibly occur during airplane operation.

3.2 Speeds for Performing Emergency Procedures

Airspeed for the best gliding ratio
(flaps retracted) ..... 59 KIAS (110 km/h IAS)

Airspeed for the best gliding ratio
(flaps in **TAKE-OFF** position – 15°)..... 57 KIAS (106 km/h IAS)

Precautionary landing (engine running,
flaps in **LANDING I** position – 30°)..... 57 KIAS (105 km/h IAS)

Precautionary landing (engine running,
flaps in **LANDING II** position – 50°)..... 54 KIAS (100 km/h IAS)

Emergency landing (engine stopped,
flaps in **LANDING I** position – 30°)..... 56 KIAS (105 km/h IAS)

Emergency landing (engine stopped,
flaps in **LANDING II** position – 50°)..... 54 KIAS (100 km/h IAS)

3.3 Engine Failure

3.3.1 Engine Failure at Take-off Run

1. **THROTTLE** lever ..... idle
2. Brakes ..... as necessary
3. **FUEL** selector ..... **OFF**
4. Ignition ..... **OFF**
5. **MASTER SWITCH** ..... **OFF**

3.3.2 Engine Failure at Take-off

1. Push the control stick to get the airplane to gliding.
2. Gliding speed:
   - Flaps in **TAKE-OFF** position (15°)..... min. 57 KIAS (106 km/h IAS)
   - Flaps retracted (0°)..... min. 59 KIAS (110 km/h IAS)
3. **THROTTLE** lever ..... idle
4. Flaps ..... as needed
5. **FUEL** selector ..... **OFF**
6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**
8. After touch down ..... brake as needed

3.3.3 Engine Failure in Flight

1. Gliding speed ..... 59 KIAS (110 km/h IAS)
2. Altitude ..... take a decision and carry out:
   - Engine starting in flight – see para 3.4
   - Emergency landing – see para 3.9.1

3.4 Engine Starting in Flight

NOTE

It is possible to start the engine by means of the starter within the whole range of operation speeds as well as flight altitudes. The engine is started up after switching the ignition to **START** position.

If the engine is shut down, the altitude loss during engine starting can reach up to 1000 ft.

1. Gliding speed ..... 59 KIAS (110 km/h IAS)
2. Altitude ..... check
3. **MASTER SWITCH** ..... **ON**
4. Unnecessary electrical equipment..... **OFF**
5. **FUEL** selector..... **LEFT** or **RIGHT**
6. **CHOKE** ..... as needed
7. **THROTTLE** lever..... idle (choke open)
   increased idle (choke closed)

The propeller is rotating:

8. Ignition..... **BOTH**

The propeller is not rotating:

9. Ignition..... **START**
10. If engine starting does not occur, increase gliding speed up to 108 KIAS (200 km/h IAS), so that air-flow turns the propeller and engine will start.
11. Ignition..... **BOTH**
12. If engine starting is unsuccessful, then continue according to para 3.9.1Emergency Landing – with Non-operating Engine.

3.5 Engine Fire

3.5.1 Fire on the Ground

1. **FUEL** selector ..... **OFF**
2. Brakes ..... brake
3. **THROTTLE** lever ..... full
4. **HOT AIR** knob ..... close
5. **COLD AIR** knob ..... close

After the engine stops:

6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**
8. Airplane ..... leave
9. Portable extinguisher ..... use

If fire extinguisher not installed:

10. Fire ..... try to extinguish by best available means or call for fire brigade

3.5.2 Fire at Take-off

1. **FUEL** selector ..... **OFF**
2. **THROTTLE** lever ..... full
3. **HOT AIR** knob ..... close
4. **COLD AIR** knob ..... close
5. Gliding speed ..... 57 KIAS (106 km/h IAS)
6. Ignition ..... **OFF**
7. Land
8. **MASTER SWITCH** ..... **OFF**
9. Airplane ..... leave
10. Portable extinguisher ..... use

If fire extinguisher not installed:

11. Fire ..... try to extinguish by best available means or call for fire brigade

3.5.3 Fire in Flight

1. **FUEL** selector..... **OFF**
2. **THROTTLE** lever..... full
3. **HOT AIR** knob..... close
4. **COLD AIR** knob ..... close
5. Gliding speed ..... 59 KIAS (110 km/h IAS)
6. Ignition..... **OFF**
7. **MASTER SWITCH** ..... **OFF**

NOTE

For extinguishing the engine fire, you can perform slip under assumption that you have sufficient altitude and time.

If you manage to extinguish the engine fire, then it is possible to switch on the **MASTER SWITCH** again. You will switch all the section switches and after switching on the **MASTER SWITCH** the electrical system is switched on which is necessary to complete the flight.

WARNING

NEVER START THE ENGINE AGAIN!

8. ATC ..... report, if possible
9. Emergency landing..... carry out according to para 3.9.1
10. Airplane ..... leave
11. Portable extinguisher ..... use

If fire extinguisher not installed:

12. Fire ..... try to extinguish by best available means or call for fire brigade

3.6 Fire in the Cockpit

1. Fire source ..... identify
2. **MASTER SWITCH** in case that the source of fire is electrical equipment ..... **OFF**
3. Portable extinguisher ..... use

4. After extinguishing the fire.....aerate the cockpit
5. Precautionary landing .....carry out according to para 3.9.2

If fire extinguisher not installed:

6. Precautionary landing .....carry out as soon as possible according to para 3.9.2

WARNING

NEVER SWITCH ON THE DEFECTIVE SYSTEM AGAIN.

NOTE

If a defective electrical system circuit was detected as the fire source, then switch off appropriate circuit breaker and switch over **MASTER SWITCH** to **ON** position.

3.7 Emergency descent

1. **THROTTLE** lever .....idle
2. Flaps .....**RETRACTED** position (0°)
3. Airspeed.....max. V_{NE}
   146 KIAS (270 km/h IAS)

3.8 Gliding Flight

NOTE

Gliding flight can be used for example in case of engine failure.

Wing flaps position	Retracted (0°)	Take-off (15°)
Airspeed	59 KIAS (110 km/ IAS)	57 KIAS (106 km/h IAS)

3.9 Emergency Landing

3.9.1 Emergency Landing – with Non-operating Engine

1. Airspeed ..... 59 KIAS (110 km/h IAS)
2. Landing area ..... choose, determine wind direction
3. Safety harness..... tighten up
4. Flaps:
   - **LANDING I** position (30°) ..... 57 KIAS (105 km/h IAS)
   - **LANDING II** position (50°) ..... 54 KIAS (100 km/h IAS)
5. ATC ..... notify situation, if possible
6. **FUEL** selector..... **OFF**
7. Ignition..... **OFF**
8. **MASTER SWITCH** ..... **OFF** before touch down

3.9.2 Precautionary Landing – with Engine Operating

1. Area for landing ..... choose, determine wind direction, carry out passage flight with speed of 57 KIAS (106 km/h IAS) flaps in take-off position (15°)
2. ATC ..... notify situation, if possible
3. Safety harness..... tighten up
4. Flaps:
   - **LANDING I** position (30°) ..... 57 KIAS (105 km/h IAS)
   - **LANDING II** position (50°) ..... 54 KIAS (100 km/h IAS)
5. Landing..... carry out

3.9.3 Landing with Burst Tire

CAUTION

WHEN LANDING AT HOLDING, KEEP THE WHEEL WITH BURST TIRE ABOVE THE GROUND AS LONG AS POSSIBLE BY MEANS OF AILERONS. IN CASE OF NOSE WHEEL BY MEANS OF ELEVATOR.

1. At running hold airplane direction by means of foot control and elevator.

3.9.4 Landing with Damaged Landing Gear

1. In case of nose landing gear damage touch down at the lowest possible speed and try to keep the airplane on main landing gear wheels as long as possible.
2. In case of main landing gear damage touch down at his lowest possible speed and if possible keep direction at running.

3.10 Unintentional Spin Recovery

NOTE

The airplane has not, when using normal techniques of pilotage, tendency to go over to spin spontaneously.

Standard procedure of recovery from spin:

1. Flaps..... retract – 0°
2. **THROTTLE** lever..... idle
3. Control stick..... ailerons - neutral position
4. Pedals ..... kick the rudder pedal push against spin rotation direction
5. Control stick ..... push forward at least to middle position as minimum and hold it there until rotation stops
6. Pedals ..... immediately after rotation stopping, set the rudder to neutral position
7. Control stick..... by gradual pulling recover the diving

CAUTION

ALTITUDE LOSS PER ONE TURN AND RECOVERING FROM THE SPIN IS 500 UP TO 1000 FT.

3.11 Low Oil Pressure

1. Oil pressure indicator..... check
2. **THROTTLE** lever..... min. necessary power
3. Perform Precautionary landing – see para 3.9.2

3.12 Generator Failure

Failure of generator is signalized by switching on the red signaling light **CHARGING** on the left side of the instrument panel.

1. **GEN** circuit breaker ..... **PULL** and then **PUSH**

If the red signaling light **CHARGING** is still on:

2. **GEN** circuit breaker ..... **PULL**
3. Decrease consumption of electric energy by switching off instruments and other electrical appliances which are not necessary for safety flight.

3.13 Unintentional Flight in Icing Conditions

1. **CARBURET. PREHEAT.** knob ..... **ON**
2. Heating..... direct the hot air toward canopy glazing
3. Icing area ..... leave immediately

3.14 Other Emergency Procedures

3.14.1 Failure of Lateral Control

1. Control the airplane in lateral direction by means of the rudder.
2. **THROTTLE** lever ..... adjust power as needed
3. Land on the nearest suitable airport or in case of need carry out Precautionary landing - see para 3.9.2

3.14.2 Failure of Longitudinal Control

1. Control the airplane in longitudinal direction by means of elevator trim tab and by changing the engine power.
2. Land on the nearest suitable airport or in the case of need carry out Precautionary landing - see para 3.9.2

3.14.3 Failure of Trim Tab Control

1. **THROTTLE** lever ..... adjust power as needed
2. Land on the nearest suitable airport or in the case of need carry out Precautionary landing - see para 3.9.2

3.14.4 Vibrations

If abnormal vibrations occur on the airplane then:

1. **THROTTLE** lever ..... Set engine RPM to the mode in which the vibrations are the lowest.
2. Land on the nearest possible airport, possibly perform safety landing according to para 3.9.2

3.14.5 Carburetor Icing

Carburetor icing happens when air temperature drop in the carburetor occurs due to its acceleration in the carburetor and further cooling by evaporating fuel. Carburetor icing mostly happens during descending and approaching for landing (low engine RPM).

Carburetor icing shows itself by engine power decreasing, by engine temperature increasing and by irregular engine running.

CAUTION

CARBURETOR ICING MAY OCCUR AT AMBIENT TEMPERATURE HIGHER THAN 32°F (0°C).

Recommended procedure for engine power regeneration is as follows:

1. **CARBURET. PREHEAT.** knob..... **OPEN**
2. **THROTTLE** lever..... set idle and cruising power again

NOTE

Ice coating in the carburetor should be removed by decrease and reincrease of engine power.

3. If the engine power is not successfully increased, then carry out landing at the nearest suitable airport or, if it is not possible, carry out safety landing according to para **Chyba! Nenalezen zdroj odkazů.**3.9.2.

3.14.6 Clogging of Air Inlet to Engine Intake

Clogging of the air inlet to the engine intake results in engine power reduction, increase of engine temperatures and irregular engine running.

The recommended procedure for engine power recovery is as follows:

1. **CARBURET. PREHEAT.** knob..... **OPEN**

3.15 Canopy Opening in Flight

WARNING

ALWAYS MAKE SURE BEFORE A TAKEOFF, THAT COCKPIT CANOPY IS FULLY CLOSED – THE RED WARNING LIGHT ON THE DASHBOARD MUST GO OFF.

IF THE AIRPLANE IS EQUIPPED WITH DIGITAL INTEGRATED INSTRUMENTS, THE APPROPRIATE LIGHT ON THE DISPLAY MUST INDICATE CLOSED CANOPY!!!

If the canopy would open in flight due to improper closing, wake behind opened canopy would cause vibrations of the horizontal tail unit and consequently vibrations of the control sticks and airplane controllability would be affected.

Proceed as follows to solve such situation:

1. Grasp shaking control stick(s). This will reduce control sticks and horizontal tail unit vibrations caused by wake behind opened canopy.
2. Pull the throttle lever to reduce airspeed to approximately 65 KIAS (120 km/h IAS).
3. Pull opened canopy down by holding the canopy frame on either side (solo flight) or on both sides (dual flight) and keep holding the canopy pulled down. This will reduce wake acting on the horizontal tail unit and improve airplane controllability.

WARNING

PRIORITY IS TO MAINTAIN AIRPLANE CONTROLLABILITY!

ATTEMPTS TO CLOSE THE CANOPY ARE SECONDARY!

4. Try to close the canopy; this could be possible in dual flight. If not, keep holding the canopy down by either hand.
5. Perform Safety landing according to para 3.9.2.
6. It is required after landing to check conditions of the canopy and lock system. Horizontal tail unit must be inspected, as well.
7. Found faults must be fixed before next flight.