

EMERGENCY PROCEDURES

Fire in Flight	2
Fire on the ground.....	3
Power Loss Take-Off	4
Power Loss in Flight.....	5
Power Loss Considerations.....	6
Power Off Emergency Landing	7
Emergency Landing Gear Extension.....	8
Gear Up Emergency Landing	9
Ditching.....	10
Emergency Landing Considerations	11
Loss of Oil Pressure	12
High Oil Temperature	13
Loss of Fuel Pressure.....	14
Engine Roughness.....	14
Propeller overspeed.....	15
Alternator failure.....	16
Electrical overload.....	17
Spins	18
Open Door	19
Autopilot Emergency Ops.....	20
Electric Trim Emergency Ops.....	21
Induction system blockage – alternate air.....	22
Emergency Static Air Source system.....	23
Other.....	24

2 - FIRE | ENGINE FIRE

Source of Fire – **CHECK**

I. Electrical Fire (Smoke in Cabin):

- (1) Master/Avionics Switches – **OFF-OFF**
- (2) Vents, Cabin Air, Heat- **CLOSE**
- (3) Vents, Cabin Air - **OPEN** when sure fire is out
- (4) **LAND** as soon as practicable

II. Engine Fire - in flight

- (1) Throttle –**CLOSE**
- (2) Mixture - **IDLE CUT OFF**
- (3) Fuel Selector - **OFF**
- (4) Vents/Firewall Air Control – **CLOSE**
- (5) Proceed with **POWER OFF LANDING** (page 7)

NOTE: *The presence of fire is noted through smoke, smell, and heat in the cabin. It is essential that the source of the fire be promptly identified through instrument readings, character of the smoke or other indications, since the action to be taken differs somewhat in each case. Pilot judgement should be the deciding factor.*

3 ▪ FIRE | ENGINE FIRE

III. Engine Fire - on the ground

If engine has **not started**

- (1) Turn engine with **STARTER** *(to pull the fire into the engine)*
- (2) Throttle – **FULL OPEN**
- (3) Mixture - **IDLE CUT OFF**
- (4) Fuel Selector Valves – **OFF**
- (5) Batt/Gen/Magneto Switches - **OFF-OFF-OFF**
- (6) **EVACUATE**
- (7) Fire - **EXTINGUISH** using fire extinguisher

If engine has started and **is running**

- (1) CONTINUE - **1700 RPM** *(to pull the fire into the engine)*
- (2) Engine – **RUN** 1700 RPM for a few minutes
- (3) Fire out – **Engine-shutdown** and inspect for damage

4 ▪ ENGINE POWER LOSS DURING TAKE-OFF

I. If sufficient runway remains land straight ahead

II. Engine failure during take-off ground roll

- (1) Throttle – **CLOSE**
- (2) Brakes - **MAXIMUM**
- (3) Fuel Selector Valve – **OFF**
- (4) Hit obstructions with minimum possible speed - **BRACE**

III. Lower 1.000 ft AGL = A-B-C-D-E

A irspeed = **95 mph** (80kt)

B est place to land = **STRAIGHT AHEAD +/- 30°**

C heck list (if time allows – if not, go to “D”)

- (1) Fuel selector – **SWITCH OTHER TANK**
- (3) Fuel pump - **CHECK ON**
- (4) Mixture - **CHECK RICH**, than **LEAN**
- (5) Alternate air– **OPEN**
- (6) Magnetos – **CHECK LEFT**, and **RIGHT**, then **BOTH**

D eclare Emergency

E xecute = **only focus on landing - BRACE**

safe **SPEED**– gear **DOWN** – flaps **FULL** – avoid obstructions

5 ▪ ENGINE POWER LOSS DURING FLIGHT

4
5

IV. If sufficient altitude to attempt a restart:

- (1) Maintain **Safe AIRSPEED - 105 mph (90kt)**
- (2) Locate landing site - **AIRPORT/SUITABLE FIELD**
1,7 NM / 1.000 ft gear up | 0,8 NM / 1.000 ft gear down
- (3) Fuel selector - **CHECK or SWITCH TO ANOTHER TANK**
- (4) Fuel flow gauge - **CHECK** if fuel flow is abnormally low:
 - (a) Mixture - **FULL RICH**
 - (b) Fuel Pump - **ON** and Lean as required
 - (c) Fuel Pump - **OFF** if performance not improve
- (5) Alternate air - **OPEN**
- (6) Engine Gauges - **CHECK** for other cause of power loss
- (7) **RESTART**
 - (i) Fuel Selector - **SELECT FULLEST TANK**
 - (ii) Throttle - **RETARD**
 - (iii) Mixture - **FULL RICH**
 - (iv) Fuel Pump - **ON** until power is regained, then **OFF**
(leave on if engine driven fuel pump is INOP)
 - (v) Throttle - **ADVANCE** to desired power
 - (vi) Mixture - **LEAN** as required

If power not regained - proceed **POWER OFF LANDING** (page 7)

6 ▪ ENGINE DISCREPANCY AND POWER LOSS IN FLIGHT CONSIDERATIONS

If time permits:

Try **Ignition Switch** - "L" then "R" then back to "BOTH"

Try **Mixture** - FULL RICH, then LEAN

This may restore power if problem is too rich or too lean a mixture, or partial fuel system restriction.

Try **Throttle** - Different settings.

Try **Alternate Air** - PULL AND RELEASE

Try another **fuel tank**

Complete engine power loss is usually caused by fuel flow interruption and power will be restored shortly after fuel flow is restored. If engine failure was caused by fuel exhaustion, power will not be restored after tanks are switched until empty fuel lines are filled, which may require up to ten seconds. Water in the fuel could take some time to be used up, and allowing the engine to windmill may restore power. If power loss is due to water, fuel pressure indications will be normal.

7 ▪ POWER OFF EMERGENCY LANDING

- (1) Maintain and trim **Best gliding airspeed 120 mph** (105 kt)
- (2) Locate landing site – **AIRPORT/SUITABLE FIELD** (GPS!)
1,7 NM / 1.000 ft gear up | 0,8 NM / 1.000 ft gear down
- (3) Prop control – **FULL DECREASE RPM** (best gliding)
- (4) Declare Emergency - **121.500** radio + xpdr **7700**
- (5) Approach landing field - **PATTERN** 1.000 ft downwind
- (6) When field easy in reach – **SLOW to 92 mph** (80 kt)
- (7) Throttle – **CLOSED**
- (8) Mixture – **CUT OFF**
- (9) Fuel selector - **OFF**
- (10) Ignition – **OFF**
- (11) Seat belts + Harnesses - **FASTENED TIGHT**
- (12) Landing gear selector – **DOWN** or **AS REQUIRED**
- (13) Landing secured – **FLAPS FULL DOWN**
- (14) MASTER switches – **OFF** (no more gear, flaps or radio!)
- (15) Contact surface at minimum possible speed - **BRACE**

8 ▪ EMERGENCY LANDING GEAR EXTENSION

If landing gear does not check down and locked:

(1) Master Switch - **CHECK ON**

(2) Circuit Breakers – **CHECK**

Manual extension:

(3) Landing gear circuit breaker - **OFF** (pull out)

(4) Landing gear handle – **DOWN** position

(5) Handcrank (behind PIC) – **ENGAGE** and **TURN**
COUNTERCLOCKWISE (appr. 50 turns)

(6) If electrical system ops - **CHECK “GREEN”**

(7) Mechanical landing gear indicator - **CHECK “DOWN”**

(8) Handcranc - **DISENGAGE** and keep stowed

(9) If Tower available - **CHECK** gear down confirmation

CAUTION: *The manual extension system is designed to lower the landing gear only. **DO NOT RETRACT THE GEAR MANUALLY.** After practice manual extension of the landing gear, the gear may be retracted electrically, as follows: (1) Hand-crank - CHECK STOWED; (2) Landing Gear Motor Circuit Breaker – IN; (3) Landing Gear – RETRACT.*

9 ▪ GEAR UP EMERGENCY LANDING

- (1) Declare Emergency - **Airport, 121,500 + 7700**
- (2) If committed to landing - **PATTERN**
- (3) Seat belts + Harnesses - **FASTENED TIGHT**
- (4) Throttle - **CLOSED**
- (5) Mixture - **CUT OFF**
- (6) Ignition - **OFF**
- (7) Fuel selector - **OFF**
- (8) Landing secured - **FLAPS FULL DOWN**
- (9) MASTER switches - **OFF** (no more flaps or radio!)
- (10) Contact surface at minimum possible speed - **BRACE**

10 ▪ DITCHING

- (1) Declare Emergency - **121,500** radio + xpdr **7700**
- (2) ELT - **ACTIVATE** manually
- (3) Heavy Objects in baggage area - **SECURE OR JETTISON**
- (4) Seat belts + Harnesses - **FASTENED TIGHT**
- (5) Landing Gear - **RETRACTED**
- (6) Wing Flaps - **20° to FULL**
- (7) Approach - High Winds, Heavy Seas - **INTO THE WIND** or
Light Winds, Heavy Swells - **PARALLEL TO SWELLS**
- (8) Cabin Doors - **UNLATCH**
- (9) Touchdown - **LEVEL ATTITUDE**
AT ESTABLISHED RATE OF DESCENT.
- (10) Face - **CUSHION** at touchdown with folded coat and **BRACE**
- (11) Aeroplane - **EVACUATE**
- (12) Life Vests and Raft - **INFLATE WHEN CLEAR OF AEROPLANE**

11 - EMERGENCY LANDING CONSIDERATIONS

GEAR DOWN except Water or swamp

Whether to attempt a landing with gear up or down depends on many factors. If the field chosen is obviously smooth and firm, and long enough to bring the plane to a stop, the gear should be down. If there are stumps or rocks or other large obstacles in the field, the gear in the down position will better protect the occupants of the aircraft.

GEAR UP in Water or swamp or too short

If the field is suspected to be excessively soft or short, or when landing in water of any depth, a wheels-up landing will normally be safer and do less damage to the airplane.

CONTROL OF GLIDE ANGLE

Excess altitude may be lost by widening your pattern, using flaps or slipping, or a combination of these. Touchdown should normally be made at the lowest possible airspeed.

EMERGENCY DESCENT

- (1) Throttle - **IDLE**
- (2) Propeller - **HIGH RPM** (2500 RPM)
- (3) Landing Gear - **DOWN**
- (4) Airspeed - **ESTABLISH 176 MPH** (153 KIAS)

12 - LOSS OF OIL PRESSURE

- (1) Power settings - **DON'T CHANGE**
- (2) Prepare for engine stopping – **PREPARE POWER OFF LANDING (7)**
- (3) Increasing temperatures CHT, EGT or oil smoke - **CHECK**
- (4) Have landing site in gliding distance - **LAND** as soon as possible
- (5) Consider off airport landing while power is still available - **CHECK**
- (6) Consider dead stick landing - **MAINTAIN ALTITUDE**
- (7) After landing – Investigate

NOTE

Loss of oil pressure may be either partial or complete.

A partial loss of oil pressure usually indicates a malfunction in the oil pressure regulating system. A complete loss of oil pressure indication may signify oil exhaustion or may be the result of a faulty gauge.

13 ▪ HIGH OIL TEMPERATURE

- (1) Power settings - **REDUCE**
- (2) Prepare for engine stopping – **PREPARE**
POWER OFF LANDING (7)
- (3) Oil pressure gauge – **CHECK** and OBSERVE
- (4) Increasing temperatures CHT, EGT or oil smoke - **CHECK**
- (5) Land as soon as possible – **NEAREST AIRPORT LANDING**
- (6) After landing – Investigate

NOTE

A steady, rapid rise in oil temperature is a sign of trouble.

Land at the nearest airport and investigate the problem.

An abnormally high oil temperature indication may be caused by a low oil level, an obstruction in the oil cooler, damaged or improper baffle seals, a defective gauge, or other causes.

14 ▪ LOSS OF FUEL PRESSURE

- (1) Electric Boost Pump - **ON**
- (2) Mixture Control – **FORWARD**
- (3) Fuel Selector - **CHECK** on full tank
- (4) If problem is not an empty fuel tank - **LAND** as soon as practicable and have the fuel system checked.

14-2 ▪ ENGINE ROUGHNESS

- (1) Mixture - **ADJUST** for maximum smoothness
- (2) Alternate Air – **OPEN**
- (3) Electric Fuel Pump – **ON** (if engine driven pump inop)
- (4) Fuel Selector - **SWITCH TANKS**
- (5) Engine gauges – **CHECK**
- (6) Magneto Switch - **L then R, then BOTH**

*If operation is satisfactory on either one magneto, continue on that magneto at reduced power, with full RICH mixture, to a landing at the first available airport. **If roughness persists, prepare for a precautionary LANDING.***

15 ▪ PROPELLER OVERSPEED

- (1) Throttle - **RETARD**
- (2) Airspeed - **REDUCE**
- (2) Oil pressure- **CHECK**
- (3) Propeller control- **FULL DECREASE RPM,**
then set if any control available
- (5) Throttle - **AS REQUIRED TO REMAIN BELOW 2500 RPM**
- (6) If problems persists - prepare precautionary **LANDING**

NOTE

Propeller over speed is caused by a malfunction in the propeller governor, or low oil pressure, which allows the propeller blades to rotate to full low pitch.

16 ▪ ALTERNATOR FAILURE

- (1) **ALT OUT** warning light illuminated – **CHECK AMMETER**
- (2) If Ammeter shows Zero – **ALT SWITCH OFF MOMENTARILY, then ON** (resets overvoltage relay)
- (3) ALT circuit breaker - **CHECK** and RESET as REQUIRED
- (4) If Power is Not Restored - **ALT Switch OFF**
- (5) Electrical load – **REDUCE** to minimum
- (6) Maintain minimum electrical load – **LAND** as soon as practicable

CAUTION

All electrical power is being supplied by the battery. If the battery is fully discharged, the FLAPS WILL NOT OPERATE and the gear will have to be lowered using the "EMERGENCY LANDING GEAR EXTENSION" procedure, and the gear position lights will be inoperative.

NOTE

Loss of alternator output is detected through a zero reading on the ammeter. Before executing the above described procedure, insure that the reading is zero and not merely low by actuating an electrically powered device, such as the landing light. If no increase in the ammeter reading is noted, alternator failure can be assumed.

17 - ELECTRICAL OVERLOAD

Alternator 5 minutes over 20 amps above known electrical load

There is no indication light for overvoltage except that the ALT warning light will illuminate as though the alternator is OUT.

- (1) BATT Master Switch – **OFF**
- (2) If Ammeter reading **DOES** decrease - **BATT** switch **ON**
- (3) Ammeter – **MONITOR**
- (4) If Ammeter reading **NOT** decrease – **ALT** switch – **OFF**
- (5) Electrical load – **REDUCE** to minimum to save battery
- (6) Land as soon as practical – **APPROPRIATE AIRPORT**
- (7) Be prepared - **EMERGENCY LANDING GEAR EXTENSION**

NOTE

Due to increased system voltage and radio frequency noise, operation with the ALT switch ON and BATT Switch OFF should be made only when required by an electrical system failure.

18 ▪ SPINS

Intentional **spins are prohibited** in this aircraft. If a spin is inadvertently entered, immediately use the following recovery procedures:

- (1) Control Wheel – **FULL FORWARD**
- (2) Throttle – **IDLE**
- (3) Ailerons – **NEUTRAL**
- (4) Rudder - **FULL OPPOSITE TO DIRECTION OF ROTATION**
- (5) Rudder – **NEUTRAL** when Rotation stops
- (6) Control Wheel – **AS REQUIRED TO SMOOTHLY REGAIN
LEVEL FLIGHT ATTITUDE**

19 ▪ OPEN DOOR

To close the door in flight, proceed as follows:

- (1) Airspeed - **SLOW** aircraft to **100 mph IAS**
- (2) Cabin Vents - **CLOSE**
- (3) Storm Window - **OPEN**
- (4) Assist latching procedure - **SLIP** in direction open door
- (5) Push door further open and then - **CLOSE RAPIDLY**
- (6) If door closed - **LATCH**
- (7) If door still open - consider normal LANDING

20 ▪ ELECTRIC PITCH TRIM EMERGENCY OPERATION

In case of malfunction, disengage electric pitch trim:

- (1) Airplane attitude - **MAINTAIN** save using elevator
- (2) TRIM SWITCH on instrument panel - **OFF** position
- (2) Electrical trim circuit breaker - **PULL**
- (2) In an emergency, electric pitch trim may be **overpowered using manual pitch trim**

NOTE

In cruise configuration, a malfunction can result in a loop pitch change and 200 ft altitude variation.

In approach configuration, a malfunction can result in a 5' pitch change and 50 ft. altitude loss.

21 ▪ AUTOPILOT EMERGENCY OPERATION

In an emergency the AutoControl can be disconnected by:

- (1) Autopilot ON/OFF switch - **OFF** position.
- (2) Autopilot circuit breaker – **PULL**
- (3) AutoControl can be **overpowered at either control** wheel.

NOTE

An Autopilot runaway, with a 3 second delay in the initiation of recovery, while operating in a climb, cruise or descending flight could result in a 45" bank and 150 foot altitude loss.

An Autopilot runaway, with a 1 second delay in the initiation of recovery, during an approach operation, coupled or uncoupled, could result in a 15" bank and 50 foot altitude loss.

22 ▪ INDUCTION SYSTEM BLOCKAGE

An **alternate induction air door**, spring-loaded to the closed position, is located downstream from the induction air filter.

If the induction air filter becomes blocked, eg. ice, the differential air pressure normally opens the alternate induction air door to provide induction air from the bottom of the engine compartment.

If the alternate induction air door becomes stuck in the closed position, **it can be opened by pulling and releasing the T-handle located directly below the propeller control knob.**

This T-handle is placarded **ALTERNATE AIR PULL AND RELEASE.**

23 ▪ EMERGENCY STATIC AIR SOURCE SYSTEM

THE EMERGENCY STATIC AIR SOURCE SHOULD BE USED FOR CONDITIONS WHERE THE NORMAL STATIC SOURCE HAS BEEN OBSTRUCTED.

When the airplane has been exposed to moisture and/or icing conditions, the possibility of obstructed static ports should be considered.

Partial obstructions will result in the rate of climb indication being sluggish during climb or descent. Verification of suspected obstruction is possible by switching to the emergency system and noting a sudden sustained change in rate of climb.

This may be accompanied by abnormal indicated airspeed and altitude changes beyond normal calibration differences.

Whenever any obstruction exists in the Normal Static Air System of the Emergency Static Air System is desired for use:

- (1) Pilots Emergency Static Air Source - Switch to **ON EMERGENCY**
- (2) For Airspeed Calibration and Altimeter Correction, refer to PERFORMANCE section.

CAUTION: Be certain the emergency static air valve is in the NORMAL position when system is not needed.

Aviate Navigate Communicate

- F - Facts
- O - Options
- R - Risks/Benefits
- D - Decide
- E - Execute
- C - Check

Transponder Codes



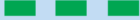


- 7700** Notfall
- 7600 Funkausfall
- 7500 Entführung

Notfall Frequenzen

- 121,500** Notruf
- 123,100 SAR-Frequenz
- 122,100 Militärplätze

Lichtsignale

Im Flug

- grün Dauer  = Landung frei
- rot Dauer  = Platzrunde fprtsetzen, anderes Flugzeug hat Vorflug
- grün Blink  = zur Landung zurückkehren / Anflug fortsetzen
- rot Blink  = nicht landen, Flugplatz nicht benutzbar
- weiß Blink  = auf diesem Flugplatz landen

Am Boden

- grün Dauer  = Start frei
- rot Dauer  = Halt
- grün Blink  = Rollen frei
- rot Blink  = Landefläche freimachen
- weiß Blink  = zum Ausgangspunkt zurück

ROTE
FEUERWERKSKÖRPER



ABFANGZEICHEN

- + (Wenn in Funkkontakt) ATC informieren
- + Auf Notfrequenz (121,500MHz) Verbindung aufnehmen
- + Transponder 7700
- + **ANWEISUNGEN FOLGE LEISTEN**

Abfängendes LFZ		Antwort
<ul style="list-style-type: none"> • Querruder AUF - AB • Blinkende Positionslichter 	Folgen Sie!	<ul style="list-style-type: none"> • Querruder AUF - AB • Blinken mit Positionslichtern
<ul style="list-style-type: none"> • Hochziehen und abdrehen 	Weiterfliegen	<ul style="list-style-type: none"> • Querruder AUF - AB
<ul style="list-style-type: none"> • Fahrwerk raus • Landescheinwerfer EIN • Überfliegen d. Flugplatzes 	Folgen und hier landen!	<ul style="list-style-type: none"> • Fahrwerk raus • Landescheinwerfer EIN • Landen (wenn möglich)