

Emergency Procedures

Chapter 3

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Note

EMERGENCY AIRSPEEDS

ITEM		CONDITION
Emergency Descent	(Gear Down)	140 Mph then to 160 Mph
Best Glide	Flaps UP (-10°)	120 Mph
Landing Approach	(w/o Power)	100 Mph

NOTE

The following checklists are presented to capture in a compact format those pilot tasks requiring rapid action.

These checklists should be kept handy for ready access by the pilot, and he should familiarize him/her self with them before flying the aircraft.

Knowledge of the switch, control, gauge, and etc. location quickly, blindfolded, is highly desirable.

ENGINE FAILURE**During Ground Roll OR Take-off/Low Altitude**

Maintain control of the aircraft. If runway permits, land and attempt on runway. If at low altitudes (less than approximately 700 ft. AGL, pick the most suitable site within +/- 30° off the nose and set up the approach. If time permits, attempt engine start.

ITEM	CONDITION
Establish.....	100 Mph
Declare.....	EMERGENCY
Check Boost pump.....	ON
Fuel transfer pumps.....	ON
Mixture.....	RICH
Magneto, Cycle, return to.....	BOTH
Flaps (when on final).....	FULL

In Flight

Establish 120 Mph glide. Climb to reduce speed if practical, pick landing site. Attempt AIR START. Follow next page with the procedures.

ITEM	CONDITION
Establish	120 Mph
Check the forward Tanks for fuel	DONE
Booster pump	ON
Mixture	RICH
Magnetos Cycle & return to	BOTH
If stopped, engage starter and attempt engine start.	
Declare	EMERGENCY
Give position at an active frequency, or	121.5
Set transponder to	7700

ROUGH RUNNING ENGINE

ITEM	CONDITION
Adjust Mixture	RICH
If no improvement carefully lean for improvement as follows:	
Reduce power setting to approximately	2100 RMP
Magnetos, Switch LT, to BOTH, to RH, then to	BOTH
Readjust mixture for	BEST OPERATION

NOTE

If power is restored and there is any doubt as to the cause of the engine roughness, land at the nearest airport and determine the cause.

ENGINE FIRE**In FLIGHT**

Determine if fire is electrical (acid smell)

ITEM	CONDITION
Fuel Selector Valve	CLOSED
Throttle	CLOSED
Mixture	OFF
Magneto / Starter Switch	OFF
Cabin Ventilation	CLOSED

If fire is not extinguished, attempt to increase airflow over engine by increase the glide speed.

Electrical Fire

ITEM	CONDITION
Master Switch	OFF
All Radios, lights, etc	OFF

If fire Off/smell clears: Turn master switch ON then each item of equipment one at a time, waiting long enough to isolate cause. If no smell, assume an unknown source and:

Land as soon as possible, find and correct cause.

Fire on ground (engine start or taxi)

ITEM	CONDITION
Throttle to	IDLE
Mixture	CUT-OFF
Radio, (Tower, Unicom, etc	"EMERGENCY"&"POSITION"
Master Switch	OFF
Magnetos	OFF

Continue cranking if during start to pull fire back into the engine. Stop and exit aircraft if taxiing.

EMERGENCY DESCENT

ITEM	CONDITION
Power to	IDLE
Propeller to	HIGH RPM
Gear (upon slowing to 140 Mph)	DOWN
Maintain (after gear down & locked	170 Mph
Transponder	7700 (or as requested)

MAXIMUM GLIDE CONFIGURATION

ITEM	CONDITION
Gear	UP
Establish	120 Mph
Flaps	UP
Propeller	LOW RPM

Glide distance is approximately 1.3 nm per 1000 feet of altitude above the terrain, however this may vary significantly. It is suggested that it be established for your individual aircraft.

LANDING EMERGENCIES

Landing without power

When landing site is selected and committed to landing the following checklist can be completed. The use of gear UP versus gear DOWN is a function of the landing site.

If the landing is to be made on water, a foamed runway or the sod adjacent to a runway, or on Gras-Strip the gear would generally be best left up.

If the terrain is harsh the gear may well absorb energy and although resulting in substantial damage to the aircraft may in that process afford some protection to the occupants and thereby be the preferable option. When assured of reaching the landing area;

ITEM	CONDITION
Seat Belts/Shoulder Harness	TIGHT
Canopy	LATCHED
Gear	UP or DOWN
Fuel Pump	OFF
Mixture	CUT-OFF
Magnetos	OFF
Flaps	AS REQUESTED
Master	OFF
Airspeed	Decrease to Touch Down

SYSTEMS EMERGENCIES

PROPELLER OVERSPEED

It is however dangerous to run any engine over its rated rpm and thus the method to reduce any over speed is to **immediately reduce the throttle to idle** and reduce airspeed to the point where rpm control is regained. Slowly add throttle and hold airspeed well below that at which the over speed occurred. Mixture may need to be adjusted also for smooth operation. If the over speed was significant, i.e. over 200 rpm over redline, an engine inspection is called for upon landing. Engine operation for the balance of the flight must be monitored closely.

PROPELLER DAMAGE

As with any major component of an aircraft, the propeller demands proper care. Nicks, scratches and other types of damage require care. While the construction varies, all are highly stressed and these nicks cause stress concentrations to a greater or lesser degree, which are dangerous. Refer to the manual for your propeller for proper limits of damage, the proper "care and feeding" of your propeller. Preflight your aircraft accordingly. The loss of any significant portion of a blade can be catastrophic.

ELECTRICAL SYSTEM FAILURE

The electrical system of your aircraft is key to safe operation in today's environment. It is required for VFR/Night operations. If a Voltmeter is installed it will be your key indicator of alternator failure which then places the entire electrical load on the battery. The battery will read approximately 12.4 volts on a full battery, and 13,8 volts on the alternator. If you experience alternator failure;

ITEM	CONDITION
Master Switch	OFF
Circuit Breakers	CHECK

The check of the Circuit Breakers may reveal a popped breaker indicating the source of the trouble. If so, turn all individual equipment OFF, reset the breaker and turn the Master Switch ON. If the breaker does not activate again, slowly turn various elements of your system ON one at a time watching for another malfunction attempting to isolate the problem.

If you believe the problem has been isolated and you elect to continue the flight, remain alert for another anomaly caused by the first difficulty.

LANDING GEAR

Your Lancair gear is held up by hydraulic pressure. Pressure switches shut off the electrical power to the pump in both the up and the down positions. If the gear will not remain retracted it may be discernable by loss of cruise speed and/or additional wind noise. Proper actions are:

ITEM	CONDITION
Airspeed, reduce to below	100 Mph
Gear Circuit Breaker	PULL
Gear Switch	DOWN
Gear Dump Valve	OPEN
Gear	3-LIGHTS
Gear Dump Valve	CLOSED
Gear Circuit Breaker	RESET

It may be necessary to slip the aircraft allowing air loads to help push gear to full down. An observer (tower or aircraft) can be used to confirm its full down position.

Once lowered it is not advisable to attempt a retraction prior to landing and determining the cause of its failure to remain fully up.

SPINS

Spins are not recommended. If a spin is entered:

Stick **Neutral-Position**

Rudder **Full against direction of the spin rotation, hold this
Control position until the spin is stopped.**

At this point, the maneuver should be down out of with smooth, positive load factor pull-out of no more than 4.5 g's taking particular care not to reenter an accelerated stall and another spin.

The Lancair is aerodynamically very clean and thus can lose a lot of altitude with such maneuvers.

EMERGENCY SPEED REDUCTION

In an emergency, the landing gear can be used to assist in reducing the speed of the aircraft quickly. Gear extension should be accompanied by idle power.

A thorough gear inspection is required following such an emergency extension and the gear should never be retracted prior to this inspection.

NOTES