EMERGENCY PROCEDURE

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EMERGENCY PROCEDURES

INTRODUCTION

This section contains procedures that are recommended if an emergency condition should occur during ground operation, take-off, or in-flight. These procedures are suggested as the best course of action for coping with the particular condition described, but are not a substitute for sound judgment and common sense. Since emergencies rarely happen in modern aircraft, their occurrence is usually unexpected, and the best corrective action may not always be obvious. Pilots should familiarize themselves with the procedures given in this section and be prepared to take appropriate action should an emergency arise.

Most basic emergency procedures, such as power off landings, are a part of normal pilot training. Although these emergencies are discussed here, this information is not intended to replace such training, but only to provide a source of reference and review, and to provide information on procedures which are not the same for all aircraft. It is suggested that the pilot review standard emergency procedures periodically to remain proficient in them.

In the procedures that follow, critical actions with respect to time are indicated by use of bold print; these actions should be performed immediately if the emergency condition is not to be aggravated. The remaining procedures are non-critical in the sense that time is usually available for consulting the check list.

ENGINE FIRE DURING START

Refer to FIRE emergency procedures.

ENGINE POWER LOSS DURING TAKE-OFF

The proper action to be taken if loss of power occurs during take-off will depend on circumstances.

1. If sufficient runway remains for a normal landing, leave the gear down and land straight ahead.
2. If the area ahead is rough, or if it is necessary to clear obstructions, put gear selector switch in the UP position. On aircraft equipped with the backup gear extender, latch the gear lever in the override position.
3. If you have gained sufficient altitude to attempt a restart, proceed as follows:
   a. MAINTAIN SAFE AIRSPEED
   b. FUEL SELECTOR - SWITCH TO ANOTHER TANK CONTAINING FUEL
   c. ELECTRIC FUEL PUMP - CHECK ON
   d. MIXTURE - CHECK RICH
   e. ALTERNATE AIR - ON
   f. EMERGENCY GEAR LEVER - AS REQUIRED

NOTE

On aircraft equipped with the backup gear extender, the landing gear will extend automatically when engine power fails at speeds below approximately 105 mph IAS. Glide distance with the gear extended is roughly halved; if conditions dictate, the gear can be retained in the retracted position by latching the lever in the override up position.

NOTE

If engine failure was caused by fuel exhaustion, power will not be regained after tanks are switched until empty fuel lines are filled, which may require up to ten seconds.

If power is not regained, proceed with the POWER OFF LANDING procedure.

ENGINE POWER LOSS IN FLIGHT

Complete engine power loss is usually caused by fuel flow interruption, and power will be restored shortly after fuel flow is restored. If power loss occurs at low altitude, the first step is to prepare for an emergency landing (See POWER OFF LANDING). Maintain an airspeed of at least 110 MPH IAS, gear and flaps up and if altitude permits proceed as follows:

1. Fuel Selector - Switch to another tank containing fuel.
2. Electric Fuel Pump - On
3. Mixture - Rich
4. Alternate Air - On
5. Engine Gauges - Check for indication of the cause of power loss.
6. If no fuel pressure is indicated, check tank selector position to be sure it is on a tank containing fuel.

When power is restored:

7. Alternate Air - Off
8. Electric Fuel Pump - Off

If the above steps do not restore power, prepare for an emergency landing. If time permits:

1. Ignition Switch - "L" then "R" then back to "BOTH."
2. Throttle and Mixture - Different settings. (This may restore power if problem is too rich or too lean a mixture, or partial fuel system restriction.
3. Try another fuel tank. (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).

NOTE

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.

If power is not restored, proceed with POWER OFF LANDING procedures.

POWER OFF LANDING

If loss of power occurs at altitude, trim the aircraft for best gliding angle (105 MPH IAS) (Air Cond. off) and look for a suitable field. (See Note) If measures taken to restore power are not effective, and if time permits, check your charts for airports in the immediate vicinity; it may be possible to land at one if you have sufficient altitude. At best gliding angle, with the engine windmilling, and the propeller control in full "decrease RPM," the aircraft will travel approximately 1.6 miles for each thousand feet of altitude. If possible, notify the FAA by radio of your difficulty and intentions. If another pilot or passenger is aboard, let him help.

When you have located a suitable field, establish a spiral pattern around this field. Try to be at 1000 feet above the field at the downwind position, to make a normal landing approach. When the field can easily be reached, slow to 90 MPH IAS for the shortest landing. Excess altitude may be lost by widening your pattern, using flaps or slipping, or a combination of these.

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. If, however, 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.

On aircraft equipped with the backup gear extender at airspeeds below approximately 105 mph IAS the gear will free fall, and will take six to eight seconds to free fall and lock. If a gear up landing is desired, it will be necessary to latch the override lever in the up position before airspeed drops to 115 mph to prevent landing gear from inadvertently free falling.

Touchdown should normally be made at the lowest possible airspeed.

GEAR DOWN LANDING

For a gear down landing, proceed as follows when committed to landing:

1. Gear selector switch - down
2. Close throttle and shut off the master and ignition switches
3. Flaps as desired
4. Turn the fuel selector valve to off
5. Mixture - Idle cut-off
6. Tighten seat belt (and shoulder harness, if available)
7. Touchdown at lowest possible airspeed

NOTE

On aircraft equipped with the backup gear extender, the mechanism will extend the gear below approximately 105 mph IAS with power off. Be prepared to latch the emergency override lever UP before airspeed drops to 115 mph to prevent landing gear from inadvertently free falling, until gear extension is desired.

NOTE

With the master switch off, the landing gear cannot be retracted.

GEAR UP LANDING

In the event a gear up landing is desired, proceed as follows when committed to landing:

1. On aircraft equipped with the backup gear extender, lock emergency gear lever in "Override Engaged" position before airspeed drops to 115 mph to prevent landing gear from inadvertently free falling.
2. Flaps as desired.
3. Close throttle and shut off the master and ignition switches.
4. Turn the fuel selector valve to off.
5. Tighten seat belt (and shoulder harness, if available).
6. Contact surface at minimum possible airspeed.

NOTE

With the master switch off, the landing gear cannot be retracted.

PROPELLER OVERSPEED

Propeller overspeed is caused by a malfunction in the propeller governor, or low oil pressure, which allows the propeller blades to rotate to full low pitch. If this should occur, proceed as follows:

1. THROTTLE - RETARD.
2. OIL PRESSURE - CHECK.
3. PROPELLER CONTROL - FULL RECREASE RPM, THEN SET IF ANY CONTROL AVAILABLE.
4. REDUCE AIRSPEED.
5. THROTTLE - AS REQUIRED TO REMAIN BELOW 2700 RPM.

EMERGENCY LANDING GEAR EXTENSION

Accomplish the following checks prior to initiation of the emergency extension procedure:

1. Master Switch - Check On.
2. Circuit Breakers - Check.
3. Panel Lights - Off (in daytime).
4. Gear Indicator Bulbs - Check.

If landing gear does not check down and locked:

5. Reduce airspeed below 100 mph.
6. Move landing gear selector switch to gear down position.
7. If gear has failed to lock down, on aircraft equipped with the backup gear extender, raise emergency gear lever to "Override Engaged" position.
8. If gear has still failed to lock down, move emergency gear lever to Emergency Down position.
9. If gear has still failed to lock down, yaw the airplane abruptly from side to side with the rudder.

NOTE

If all electrical power has been lost, the landing gear must be extended using the above emergency procedures. The landing gear position indicator lights will not be operative.

NOTE

Refer to page 3-11 for differences when emergency extension procedure is performed for training purposes.

SPINS

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

1. THROTTLE - IDLE.
2. RUDDER - FULL OPPOSITE TO DIRECTION OF ROTATION.
3. CONTROL WHEEL - FULL FORWARD.
4. RUDDER - NEUTRAL (WHEN ROTATION STOPS).
5. CONTROL WHEEL - AS REQUIRED TO SMOOTHLY REGAIN LEVEL FLIGHT ATTITUDE.

NOTE

On aircraft equipped with the backup gear extender, the landing gear will extend in this flight condition, but will retract during recovery, aand has no adverse affect on the spin characteristics.

OPEN DOOR

The cabin door on the Cherokee Arrow II is latched at four points so the chances of its opening in flight are remote. However, should you forget to completely close or latch the door, it may open partially. This will usually happen soon after take-off. An open door will not affect the normal flight characteristics, and a normal landing can be made with it open. If the door opens it will trail in a slightly open position, and the airspeed will be reduced slightly.

To close the door in flight, proceed as follows:

1. Slow aircraft to 100 mph IAS.
2. Cabin Vents - Close.
3. Storm Window - Open.
4. If upper latch is open - latch. If lower latch is open - open top latch, push door further open, and then close rapidly. Latch top latch.

A slip in the direction of the open door will assist in latching procedure.

FIRE

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.

1. Source of Fire - Check
   a. Electrical Fire (Smoke in Cabin):
      (1) Master Switch - Off
      (2) Vents - Open
      (3) Cabin Heat - Off
      (4) Land as soon as practicable.

   b. Engine Fire:
      (1) In case of engine fire in flight
         (a) Fuel Selector - OFF
         (b) Throttle - CLOSE
         (c) Mixture - IDLE CUT OFF
         (d) Heater - Off (In all cases of fire)
         (e) Defroster - OFF (In all cases of fire)
         (f) If terrain permits - Land Immediately

The possibility of an engine fire in flight is extremely remote. The procedure given above is general and pilot judgement should be the deciding factor for action in such an emergency.

      (2) In case of engine fire on the ground
         (a) If engine has not started
            1. Mixture - IDLE CUT OFF
            2. Throttle - OPEN
            3. Turn engine with starter (This is an attempt to pull the fire into the engine.)
         (b) If engine has already started and is running, continue operating to try pulling the fire into the engine.
         (c) In either case stated in (a) and (b), if the fire continues longer than a few seconds, the fire should be extinguished by the best available external means.
         (d) If external fire extinguishing is to be applied
            1. Fuel Selector Valves - OFF
            2. Mixture - IDLE CUT OFF

LOSS OF OIL PRESSURE

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, and a landing should be made as soon as possible to investigate the cause and prevent engine damage.

A complete loss of oil pressure indication may signify oil exhaustion or may be the result of a faulty gauge. In either case, proceed toward the nearest airport, and be prepared for a forced landing. If the problem is not a pressure gauge malfunction, the engine may stop suddenly. Maintain altitude until such time as a dead stick landing can be accomplished. Don't

change power settings unnecessarily, as this may hasten complete power loss.

Depending on the circumstances, it may be advisable to make an off airport landing while power is still available, particularly if other indications of actual oil pressure loss, such as sudden increase in temperatures, or oil smoke, are apparent, and an airport is not close.

If engine stoppage occurs, proceed to POWER OFF LANDING.

LOSS OF FUEL PRESSURE

1. Electric Boost Pump - On.
2. Mixture Control Forward.
3. Fuel Selector - Check on full tank.

If problem is not an empty fuel tank, land as soon as practicable and have the fuel system checked.

HIGH OIL TEMPERATURE

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. Land as soon as practicable at an appropriate airport, and have the cause investigated.

A steady, rapid rise in oil temperature is a sign of trouble. Land at the nearest airport and let a mechanic investigate the problem. Watch the oil pressure gauge for an accompanying loss of pressure.

ALTERNATOR FAILURE

Loss of alternator output is detected through a zero reading on the ammeter. Before executing the following 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.

1. Reduce electrical load.
2. Alternator Circuit Breakers - Check.
3. "Alt" Switch - Off (for 1 second), then On.

If the ammeter continues to indicate no output, or alternator will not stay reset, turn off "Alt" switch, maintain minimum electrical load, and land as soon as practical. All electrical power is being supplied by the battery.

NOTE

If the battery is fully discharged, the gear will have to be lowered using the "EMERGENCY LANDING GEAR EXTENSION" procedure, and the position lights will of course not be operating.

CG Range 87.3 FWD 93.0 AFT			TCDS 2A13 CAR3 Max Weight 2650 Pounds
EQUIPMENT CHANGE - WEIGHT & BALANCE			
REG. NO. N44443	MODEL PA28R-200		Serial No. 28R-7535001
Items: (Description / P/N / S/N)	Weight (Pounds)	Arm (Inches)	Moments (Inch/Pounds)
Previous Aircraft Empty Weight	1720.77	87.29	150211.46
Removed KX-175B Radio	-7.0	61.00	-427.00
Add TKM MX170C Radio direct replacement	4.8	61.00	292.80
New Aircraft Empty Weight	1718.57	87.33	150077.26

A. Old Empty Weight	1720.77	Pounds
B. Old Empty CG	87.29	Inches
C. Old Empty Weight CG Moment	150211.46	Inch/Pounds

A. New Empty Weight	1718.57	Pounds
B. New Empty CG	87.33	Inches
C. New Empty Weight CG Moment	150077.26	Inch/Pounds
D. New Useful Load	931.43	Pounds

This new weight & balance information superseads all previous weight and balance data.
For aircraft loading, see instructions in Weight & Balance Section of Aircraft Flight Manual.

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