

3.3b Engine Power Loss During Takeoff (3.9)

If sufficient runway remains for a normal landing:

Leave gearDOWN
Land straight ahead.

If area ahead is rough, or if it is necessary to clear obstructions proceed as follows:

Propeller Control LeverFEATHER
Fuel Condition LeverOFF
Landing Gear SelectorUP
Firewall Fuel ShutoffOFF
Fuel SelectorOFF
Header Tank Boost Pump SwitchOFF
Battery Master SwitchOFF

Note

If time and conditions permit, a radio call to the controlling agency prior to turning the battery switch off might help to notify crash assistance.

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3.3b Engine Power Loss During Takeoff (Continued)

If sufficient altitude has been gained to attempt a restart:

Maintain Safe Airspeed
Power Control LeverIDLE
Ignition.....ON
If Ng < 50%, Fuel Condition Lever.....OFF
Check Firewall Fuel Shutoff.....ON
Fuel Boost Pump.....SELECT other pump
Starter.....ON
Fuel Condition Lever (As soon as Ng reaches 12%).....RUN

CAUTION

Do not exceed starter time limits
(30 seconds ON, 1 minute OFF, 30 seconds ON, 1 minute OFF,
30 seconds ON, 30 minutes OFF)

When engine attains idle rpm:

Starter.....OFF
Ignition switch.....OFF
Power Control LeverADJUST as required

If power is not regained:

Starter.....OFF
Ignition switch.....OFF
Prepare for power off landing.

(1) Engine Failure (Mechanical Failure)

Engine failure can be caused by various problems. The following general procedure should be followed in case of an engine mechanical failure. The first step is to maintain aircraft control and establish a safe airspeed.

Trim for 90 KIAS

Propeller Control Lever.....	FEATHER
Fuel Condition Lever.....	OFF
Fuel Boost Pump Switch	OFF
Firewall Fuel Shutoff	OFF
Fuel Selector	OFF
Power Control Lever	IDLE

Warning

Do not attempt to restart an engine which is definitely known to have failed due to a mechanical failure.

(2) Engine Flame-Out

A flameout will be noticed by a drop in InterTurbine temperature (ITT), torquemeter pressure, and N_g . The engine may be restarted in the manner described under Air Starts.

(3) Air Starts

The best air start technique is to initiate the re-light procedure immediately after a flameout occurs, provided the pilot is certain that the flame out was not the result of some malfunction which might make it dangerous to attempt a re-light.

(3) Air Starts (Continued)

WARNING

Use caution during starts above 20,000 feet, or with gas generator rpm below 12%, starting temperatures tend to be higher and require close monitoring. If ITT climbs rapidly towards 900° C, be prepared to move the fuel condition lever to CUTOFF.

(3a) Immediate Re-Lights

Check NG.....50% or greater
Power Control Lever.....IDLE
Ignition Switch.....ON or AUTO
Fuel Condition Lever.....ON

The "AUTO" ignition feature, for airplanes so equipped, should allow the engine to immediately relight following a flameout.

When engine attains idle rpm:

Ignition Switch.....OFF or AUTO
Power Control Lever.....As Desired
Land as soon as practical and investigate cause of power loss.

If engine fails to restart or N_G drops below 50%:

Ignition Switch.....OFF
Proceed with Normal Air-Start procedures below.

(3b) Normal Air-Start

The recommended pre-air-start check procedure is:

Fuel Condition Lever.....OFF
Propeller Control Lever.....If in feather, leave FEATHERED
.....otherwise FULL INCREASE
Power Control Lever..... IDLE
Generator, Alternator, non essential electrical equipmentOFF
Battery Master Switch.....ON
Firewall Shutoff Valve.....CHECK Open
Fuel Boost PumpON
Check Fuel Pressure.....5 psi, minimum
Airspeed..... 90 KIAS minimum
Altitude.....PT6A-34 & -35: 20000 ft max (Prop Feathered)
.....PT6A-34 & -35: 24000 ft max (Prop Windmilling)
.....PT6A-21: 18000 ft (Prop Feathered or Windmilling)

NOTE

If the engine has flamed out or is shut down, the propeller will eventually feather automatically with loss of oil pressure.

CAUTION

Except for immediate relights with $N_G > 50\%$, Do not use the "AUTO" feature (if so equipped) for engine starts

The recommended air-start procedure is:

Ignition SwitchON
Battery Select Switch.....SELECT Highest Voltage System
.....or BOTH, if equipped
Starter.....ON
Fuel Condition Lever.....RUN, after 5 sec of stabilized $N_G > 12\%$
CHECK rise in N_G to 52% and increase in ITT

(3b) Normal Air-Start (Continued)

When engine attains idle rpm.

Starter.....OFF
Ignition Switch.....OFF
Propeller Control Lever.....Operating Range

Note

If the engine was started with the prop feathered, move the prop very slowly out of feather (approximately ½ inch forward) and allow time for the prop to unfeather and stabilize. Continue to very slowly advance the lever to the desired prop RPM

Power Control Lever.....As Desired
Land as soon as practical and investigate cause of power loss.

Note

If a satisfactory start is not obtained, discontinue the air start. Repeat the engine air-start procedure if another starting attempt is to be made.

Caution

If normal engine operation and fuel flow are not reestablished, it could indicate a leak in the fuel system. If a fuel system leak is verified, switch the Firewall Fuel Shutoff to the Off position, fuel boost pumps to off, and fuel selector to off to stop fuel flow and minimize the possibility of a fire.

If power is not restored:

Prepare for power off landing.

(3c) Air Start – Windmilling Engine and Propeller (No Starter Assist)

This procedure should only be used if starter assistance is not available. If the engine and propeller are windmilling and the Ng has not fallen below 12%, the engine can be started without use of the starter. Proceed as follows.

The recommended pre-air-start check procedure is:

Fuel Condition Lever.....OFF
Propeller Control Lever.....FULL INCREASE
Power Control Lever..... IDLE
Generator, Alternator, non essential electrical equipmentOFF
Battery Master Switch.....ON
Firewall Shutoff Valve.....CHECK Open
Fuel Boost PumpON
Check Fuel Pressure.....5 psi, minimum

The air-start procedure without starter assistance is:

PT6A-34 & -35 With Ice Door Off:

Airspeed/Altitude160 KIAS min and 24000 ft max
OR, if below 18000 ft,140 KIAS min

PT6A-34 & -35 With Ice Door On:

Airspeed/Altitude.....160 KIAS min and 21000 ft max

PT6A-21 With Ice Door Off:.....140 KIAS min and 18000 ft max

PT6A-21 With Ice Door On:.....160 KIAS min and 18000 ft max

Ng.....12% minimum
Ignition SwitchON
Fuel Condition Lever.....RUN, after 5 seconds of stabilized Ng
Power Control Lever.....As Desired after start
LAND as soon as practical and investigate cause of power loss.

(3c) Air Start – No Starter Assist (Continued)

NOTE

A re-light normally should be obtained within 10 seconds, and will be evidenced first by a rise in gas generator rpm. A rise in ITT will also be noted.

3.3d Power Off Landing (3.13)

Establish best gliding angle90 KIAS
Propeller.....FEATHER
Locate suitable field.

Establish spiral pattern to arrive at 1500 ft. above field at downwind position for normal approach.

When assured of reaching the field, use flaps as necessary and slow to 77 KIAS with flaps fully extended for shortest landing.

When committed to landing:

Landing Gear Selector.....As desired
Flaps.....As Required
Fuel Condition Lever.....OFF
Propeller Control.....FEATHER if necessary
Firewall Fuel Shutoff.....OFF
Fuel Selector.....OFF
Fuel Boost Switch.....OFF
Battery Master Switch.....OFF
Seat Belt and Harness.....TIGHT

NOTE

If the battery master switch is off, the gear position lights and flaps will be inoperative.