Emergency Procedures Checklist

Procedures in **Bold Face** type are immediate action items which should be committed to memory. In any abnormal or emergency situation,

1. Maintain aircraft control; 2. Analyze the situation and take appropriate action by referring to the aircraft checklist & POH; 3. Land as soon as practicable.

ENGINE FIRE DURING START

IF ENGINE HAS NOT STARTED OR DOES NOT START

Starter..... CONTINUE CRANKING

Throttle ..... OPEN

Fuel Selectors ..... OFF
Magnetos ..... OFF
Master Switch..... OFF

IF ENGINE STARTS OR IS RUNNING

Throttle ..... 1500 RPM *(To pull fire into engine)*

Engine ..... SHUTDOWN

Mixture.....IDLE CUT-OFF

IF FIRE CONTINUES *(for more than a few seconds)*

Fuel Selectors..... OFF

Mixture.....IDLE CUT-OFF

Fire Extinguisher .....ACTIVATE

ABORT

Throttles ..... IDLE

Brakes.....APPLY

ENGINE FAILURE DURING TAKEOFF

Single Engine Min. Control Speed V_{MC} is 84 mph

FAILURE ON TAKEOFF ROLL

ABORT

Fuel Selector Valves..... OFF
Magnetos ..... OFF
Master Switch..... OFF

AIRBORNE, GEAR DOWN & SUFFICIENT RUNWAY

Throttles ..... IDLE

Land ..... STRAIGHT AHEAD

IF TAKEOFF CONTINUED

MAINTAIN DIRECTIONAL CONTROL

Airspeed..... ..BLUE LINE 95 V_{YSE} or Higher

(Use 87 V_{XSE} as minimum for obstacles)

Mixtures.....FULL FORWARD

Props.....FULL FORWARD

Throttles .....FULL FORWARD

Flaps ..... UP

Gear ..... UP

IF ENGINE DOES NOT RECOVER

Identify..... *(Dead Foot – Dead Engine)*

Verify.....THROTTLE RETARD & CLOSE

Affected Engine ..... PROP FEATHER

Mixture Affected Engine.....IDLE CUT-OFF

Time Permitting

Magnetos Affected Engine..... OFF

Boost Pump Affected Engine ..... OFF

Fuel Selector Valve Affected Engine ..... OFF

Land..... AS SOON AS POSSIBLE

ENGINE FAILURE DURING CLIMB

Single Engine Min. Control Speed V_{MC} is 84mph

Engine Failure Below 80 MPH

Directional Control .....MAINTAIN

Throttle operating engine..... REDUCE
(to maintain directional control)

Pitch Attitude..... REDUCE AS NECESSARY

Accelerate ..... BLUE LINE V_{YSE} 95 MPH

Inoperative Engine.....FEATHER

Engine Failure Above 80 MPH

Directional Control .....MAINTAIN

Airspeed.....BLUE LINE V_{YSE} 95 MPH

Inoperative Engine.....FEATHER

ENGINE FAILURE DURING FLIGHT

Directional Control .....MAINTAIN

Airspeed..... BLUE LINE (95 MPH or Higher)

Mixtures.....FULL FORWARD
Props.....FULL FORWARD
Throttles .....FULL FORWARD
Gear ..... UP
Flaps ..... UP
Fuel Boost Pumps.....ON

Troubleshoot Checklist *(Time & Circumstances Permitting)*
Mixture .....AS REQUIRED
Fuel Boost Pump(s).....ON
Fuel Selectors .....CHECK ON & CROSSFEED
Magnetos ..... L or R ONLY
Carb Heat.....ON
IF ENGINE DOES NOT RECOVER
Inoperative Engine .....IDENTIFY, VERIFY & FEATHER

ENGINE FIRE DURING FLIGHT ***Affected engine:***

Fuel Selector Valve ..... OFF
Throttle.....CLOSE
Prop..... FEATHER
Mixture.....IDLE CUT-OFF
Time permitting:
Magnetos .....OFF
Alternator .....OFF
Airspeed..... INCREASE to create an incombustible mixture
Land as soon as possible.

FUEL CROSS FEED

Boost Pump Failed Engine .....ON
Cross-feed .....ON
Fuel Selector Valve, Failed Engine .....ON
Fuel Selector Valve, Operating Engine .....OFF
When Fuel from INOP engine Exhausted or Before Descent
Fuel Selector Operating Engine .....ON
Cross-Feed .....OFF
Fuel Selector Failed Engine.....OFF

SINGLE ENGINE LANDING

Inoperative Engine.....FEATHERED
If Cross-feed has been used
Cross-Feed .....OFF

Fuel Selector Operating Engine ..... ON
Fuel Selector Failed Engine ..... OFF

(When Certain of Making Field)
Landing Gear ..... EXTEND
Pattern & Final Approach ..... BLUE LINE V_{YSE} 95 MPH
Flaps ..... DOWN on Short Final

SINGLE ENGINE GO-AROUND

If a single engine go-around cannot be avoided:
Mixture ..... FULL RICH
Prop ..... FULL FORWARD
Throttle ..... FULL OPEN
Flaps ..... UP
Gear ..... UP
Airspeed ..... BLUE LINE V_{YSE} 95 MPH
Trim ..... SET

FEATHERING PROCEDURE

WARNING

Props must be feathered before RPM decays below 500. Below 500 RPM stop pins engage that keep the props from feathering during normal engine shutdown & single engine performance will be significantly degraded from the increased drag of the windmilling prop.

Throttle ..... RETARD TO VERIFY
Prop ..... FEATHER
Mixture ..... IDLE CUT-OFF
Airspeed ..... BLUELINE (V_{YSE} 95 or Higher)
Zero Side Slip ..... ESTABLISH
(2-3^{O} Bank & Split the Ball into Good Engine)
Fuel Boost Pump ..... OFF
Magnetos ..... OFF
Alternator ..... OFF
Electrical Load ..... REDUCE
Fuel Selector ..... OFF

UNFEATHERING PROCEDURE

Fuel Boost Pumps ..... ON
Magnetos ..... ON
Fuel Selector Valve ..... ON
Cross-feed ..... OFF
Throttle ..... OPEN ¼ INCH

Prop Control ..... CRUISE RPM SETTING
Mixture ..... RICH
Starter .....FEATHERED ENGINE, ENGAGE
....PITCH DOWN IF NECESSARY TO AID PROP ROTATION
Throttle.....REDUCED POWER (WARMUP)
Alternator .....ON

LANDING GEAR MALFUNCTIONS

HYDRAULIC PUMP (GEAR/FLAPS) FAILURE

WITH LEFT ENGINE FAILED; HYDRAULIC PUMP IS INOP

Before Extending Gear Manually Check:

Master Switch.....ON
Navigation Lights ..... OFF *(Daytime)*

Manual Gear Extension

Airspeed.....125 MPH or BELOW
Gear Lever .....DOWN
Hand Pump Handle .....EXTEND
Hand Pump .....GEAR: 30-40 STROKES
Gear Indicators.....CHECK 3 GREEN
Emergency Gear Extension Knob .....LEAVE EXTENDED

Manual Flap Extension

Flap Lever .....DOWN
Hand Pump ..... 8-12 STROKES

MANUAL HYDRAULIC PUMP FAILURE (CO_2 BOTTLE)

Landing Gear Lever.....DOWN
Access Panel Under Pilot Seat ..... OPEN
Lanyard ..... PULL
Down & Locked Lights.....CHECK

DO NOT ATTEMPT TO RETRACT GEAR

Gear-up Emergency Landing

Approach..... NORMAL POWER & AIRSPEED
Flaps.....UP
Throttles.....CLOSE BEFORE TOUCHDOWN
Master & Magnetos .....OFF
Fuel Selectors .....OFF
Contact surface at minimum airspeed

HIGH CYLINDER HEAD TEMPERATURE

Mixture ..... ENRICHEN
Airspeed ..... INCREASE
Throttle ..... REDUCE POWER

HIGH OIL TEMPERATURE

Airspeed ..... INCREASE
Throttle ..... REDUCE POWER
PREPARE FOR ENGINE FAILURE!

LOW OIL PRESSURE

Oil Temperature ..... MONITOR
Throttle ..... REDUCE POWER
EXPECT ENGINE FAILURE! LAND AS SOON AS POSSIBLE!

ELECTRICAL FAILURES

Electrical Loads Except Master ..... OFF
Alternator Switches ..... OFF
Alternator Switches ..... MOMENTARILY ON
(One at a time while observing ammeter)
Alternator showing LEAST output ..... ON
Electrical Equipment ..... ON
(Do not Exceed 30 AMP Output)
If Both Alternators show Equal Output:
Alternators ..... ON
Electrical Equipment ..... ON As Necessary

If Battery Becomes Depleted Due to Weakened Condition or Excessive Cranking:

Alternator Circuit Breakers ..... CHECK
Heavy Electrical Loads ..... REMOVE
Master Switch ..... LEAVE ON
Operating Alternator Switch ..... ON
Master Switch ..... OFF
Wait a short time then:
Master Switch ..... ON
If no output noted; Recycle step above with longer waiting period.
Once power is re-established:
Electrical Equipment ..... ON
(Do not Exceed 30 AMP Output)

Loss of Output from One Alternator:

Electrical Load..... REDUCE
(Do not Exceed 30 AMP Output)

ELECTRICAL FIRE DURING FLIGHT

Master Switch..... OFF

Alternator Switches..... OFF

Cabin Ventilation ..... OPEN
Heating Controls..... CLOSED
Circuit Breakers..... CHECK

HEATER FIRE OR OVERHEAT DURING FLIGHT

Heater Fuel Switch ..... OFF
Heater Switch..... OFF
Heater Vents ..... CLOSE
Emergency Descent .....EXECUTE TO EXTINGUISH FIRE
LAND AS SOON AS POSSIBLE

VACUUM SYSTEM FAILURES

NOTE

A malfunction of the vacuum system will become apparent as a reduction of indication on the gauge. A red button indicator will show in case of a feathered engine or vacuum pump failure.

If vacuum shows less than 4.5 inches:
Engine RPM 2700
Descent to an altitude where 4.5 inches can be maintained.
Use Turn Coordinator to monitor the Attitude Indicator & Directional Gyro Performance

PROPELLER OVERSPEED

CAUTION:

Loss of Nitrogen charge in the propeller dome may cause the prop to overspeed if the throttle is advanced rapidly or airspeed is abruptly increased. If an overspeed condition is encountered, the propeller will not feather & the following procedure followed:

Throttle..... CLOSE
Airspeed..... SLOW TO 95
Propeller Control .....PULL TO LOW RPM
Throttle.....SLOWLY INCREASE
(Until prop governor is engaged)
Throttle & Prop SLOWLY INCREASE TO DESIRED POWER SETTING
Flight.....CONTINUE
(At reduced power & airspeed)

If throttle is retarded below 15-20 In. MP above 95 MPH, Propeller may overspeed again upon re-applying power. If this occurs, perform same procedure to regain prop control.

EMERGENCY DESCENT

Throttles.....CLOSED
Landing Gear.....DOWN
Flaps.....DOWN
Airspeed.....120 MPH not to exceed 125

SPINS

WARNING

Intentional Spins are Prohibited

Throttles ..... IDLE

Rudder.....FULL OPPOSITE DIRECTION OF SPIN

Yoke..... FORWARD

Ailerons..... NEUTRAL

Controls..... MAINTAIN UNTIL SPIN STOPS

Recover from resulting dive with smooth back pressure on Yoke. **Do not exceed aircraft load limits!**

FORCED LANDING

ELT ..... ARMED
Seat Belts & Shoulder Harnesses.....SECURED
Cabin Door ..... UNLATCED
Gear & Flaps.....DOWN if conditions permit
If belly landing .....GEAR & FLAPS LEAVE UP
Fuel Selector Valves.....OFF
Mixtures .....IDLE CUT-OFF
Magnetos .....OFF
Radio ..... MAYDAY (121.5)
Transponder..... 7700
Airspeed..... 80 MPH
Master Switch.....OFF
Wings.....LEVEL
Land Straight Ahead

CABIN DOOR OPEN INFLIGHT

Airspeed..... 90 MPH or LESS
Pilot's Window.....OPEN
Door ..... CLOSE & LATCH