

**LANE A OR B FAULT-----DO NOT FLY / PRECAUTIONARY LANDING**

**ENGINE FIRE DURING START**

- Continue Cranking
- Throttle-----FULL OPEN
- Fuel Shutoff Valve ----- PULL UP
- Fuel Pump Switches ----- BOTH OFF

If fire persists or is not limited to Intake/Exhaust

- Electrical Switches-----ALL OFF
- Lane A and B ----- BOTH OFF
- Evacuate and extinguish fire

**ENGINE FIRE DURING FLIGHT**

- Fuel Shutoff Valve ----- PULL UP
- Fuel Pump Switches ----- BOTH OFF
- Lane A and B ----- BOTH OFF
- Vents and Cabin Heat -----CLOSED/OFF
- Airspeed-----INCREASE TO EXTINGUISH FIRE

**NO Engine Restart, proceed to Forced Landing Procedures**

**ELECTRICAL FIRE**

- Electrical Switches ----- ALL OFF (**Leave Lane Switches On**)
- 30A Gen Main Bus fuse----- PULL/REMOVE
- Air Vent ----- OPEN AS NEEDED
- Land-----IMMEDIATELY (Do Not Turn Electrical Items Back On)

**GENERATOR A OR B FAILURE** (Ammeter Discharge, <13v)

- Non-Essential Electrical Equipment (ex: Lights, Avionics) --- OFF
- Land----- AS SOON AS POSSIBLE

**GENERATOR A AND B FAILURE (Engine will stop)**

- Non-Essential Electrical Equipment (ex: Lights, Avionics) --- OFF
- EMS Backup Battery Switch ----- ON

Follow Engine Failure In Flight procedures

**HIGH VOLTAGE (greater than 14-15v)**

- 30A Gen Main Bus fuse ----- PULL/REMOVE
- Non-Essential Electrical Equipment (ex: Lights, Avionics)----OFF
- Land ----- AS SOON AS POSSIBLE

**ENGINE FAILURE IN FLIGHT (Prop will not windmill below 80knots)**

- Airspeed ----- PITCH FOR BEST GLIDE
- Decide- IF TIME ALLOWS, TRY RESTART, else **FORCED LANDING**

**Restart**

- Lane A and B----- BOTH ON
- EMS Backup Battery Switch-----ON
- Fuel Pump Switches ----- BOTH ON
- Fuel Shutoff Valve----- CHECK ON – DOWN
- Throttle ----- SET TO 50%
- Spar Pin Override Switch ----- HOLD/PUSH IN
- Ignition Key -----ENGAGE

**If Restart not possible, change throttle settings and retry**

**FORCED LANDING**

- Fuel Shutoff Valve----- PULL UP
- Fuel Pump Switches ----- BOTH OFF
- Lane A and B----- BOTH OFF
- Flaps----- FULL DOWN (Below 82KIAS)
- Master Switch-----OFF
- EMS Backup Battery Switch-----OFF
- 30A Gen ½ Main Bus fuse----- PULL/REMOVE
- Touchdown ----- MINIMUM AIRSPEED
- ELT -----Consider ACTIVATING if Off-Airport Landing

**AIRSPEEDS FOR SAFE OPERATION (KIAS)**

V <sub>SO</sub> -----	<b>41</b>	V <sub>FE</sub> -----	<b>82</b>
V <sub>S</sub> -----	<b>45</b>	V <sub>O(850lbs)</sub> -----	<b>72</b>
V <sub>X</sub> ---	<b>60(½ flaps)</b>	V <sub>O(1320lbs)</sub> -----	<b>90</b>
V <sub>G</sub> -----	<b>63</b>	V <sub>NO</sub> -----	<b>108</b>
V <sub>Y</sub> -----	<b>75</b>	V <sub>NE</sub> -----	<b>136</b>

**PRE-FLIGHT INSPECTION**

**CABIN**

- Canopy ----- OPEN, CHECK operation/condition
- Flight Control Locks-----REMOVE
- Seat Back Position ----- SET
- Spar Pins -----CHECK ENGAGED
- Fuel Tank-----CHECK FUEL LEVEL on Mechanical Fuel Gauge
- Fuel Shut-Off Valve -----PUSH DOWN/ON
- Avionics Switch ----- OFF
- EFIS Battery Backup Switch----- ON  
Ensure PFD boots up
- Master Switch ----- ON  
Cooling fans (listen!), MFD powers up (confirm)
- EFIS Battery Backup Switch-----**MASTER DEPENDENT**
- Stall Warning Vane ----- ACTUATE

**WARNING**

During high ambient temperature conditions, run the fuel pump for 5 mins to flush the fuel lines and minimize the potential for vapor lock.

- Lights / Strobes -----CHECK then OFF
- EMS Backup Battery Switch ----- **OFF**
- Engine/Total Hours ----- **RECORD**
- Master Switch ----- OFF
- ELT----- CHECK OFF (No red light)
- Baggage -----RESTRAINED
- Foreign or Misplaced Objects ----- CHECK
- Spare Fuses----- AVAILABLE

**LEFT WING**

- Wing -----CONDITION
- AOA Static Port -----CHECK for obstructions
- Tie-Down-----REMOVE (can remove eyebolt too)
- Wing Hand Hold-----CHECK no free movement\*
- Flaperon----- CHECK condition, freedom of movement
- Flaperon Hinge Brackets ----- CHECK BOLTS

**\*WARNING**

When applying Fore and Aft force check for play at the rear spar junction. This is usually discovered by hearing a clicking noise.

If this is the case, refer to the Maintenance Manual for corrective action.

Excessive fore and aft play in the left wing may also render the EFIS AOA indications inaccurate.

**LEFT MAIN LANDING GEAR**

- Tire-----CONDITION, proper inflation 25 psi
- Brake ----- CHECK condition, no leakage
- Axle Nut ----- CHECK cotter pin installation
- Wheel Bearings ----- SHAKE WHEEL/CHECK
- Wheel Chocks ----- REMOVE

**FUSELAGE (LEFT SIDE)**

- Flaperon Control Tab ----- FULLY INSERTED, NO PLAY
- Fuel Sample-----CHECK for water or sediment contamination
- Static Port ----- CLEAN & OPEN

**EMPENNAGE**

- Vertical Stabilizer -----CHECK condition
- Stabilator-----CHECK condition, freedom of movement
- Anti-Servo Tab ----- CHECK condition, proper attachment
- Rudder --CHECK condition, attachment, freedom of movement
- Tie-Down ----- REMOVE

**FUSELAGE (RIGHT SIDE)**

- Static Port----- CLEAN & OPEN
- ADS-B Antenna ----- CHECK condition & security
- Comm. Antenna----- CHECK condition & security
- Fuel Vent Line----- CLEAR
- Fuel Cap ----- SECURE
- Flaperon Control Tab----- FULLY INSERTED, NO PLAY

**RIGHT MAIN LANDING GEAR**

- Tire ----- CONDITION, proper inflation 25 psi
- Brake-----CHECK condition, no leakage
- Axle Nut-----CHECK cotter pin installation
- Wheel Bearings----- SHAKE WHEEL/CHECK
- Wheel Chocks-----REMOVE

**RIGHT WING**

- Flaperon----- CHECK condition, freedom of movement
- Flaperon Hinge Brackets ----- CHECK BOLTS
- Wing Hand Hold-----CHECK no free movement\*
- Wing -----CONDITION
- Tie-Down-----REMOVE (can remove eyebolt too)

**NOSE SECTION**

- Transponder Antenna----- CHECK condition & security
- Muffler ----- CHECK condition, security of attachment
- Coolant ----- LEVEL CHECK
- Engine Oil ----- CHECK quantity, color, and clarity

**WARNING**

**Before performing the engine oil check procedure, make sure Master and both lane/ignition switches are in the OFF position**

1. Remove oil cap from oil tank and place cap in holder on oil door
2. Turn propeller by hand in direction of prop rotation several times to pump oil from engine sump into oil tank
3. A gurgling sound will be heard. Check oil level on stick
4. Return cap to oil tank and secure

**ALTERNATIVE TO STEP 2:**

- Ensure step1 complete (oil cap removal/secure)
- Check oil – minimum quantity at or above tip of dipstick
- **Feet on brakes, Canopy closed**
- MASTER SWITCH – ON
- Lane/Ignition Switches – **BOTH OFF, Double Check OFF**
- Use the start key to turn the propeller for 10 seconds
- MASTER SWITCH – OFF
- Proceed to Step 3 (may require 1-2 hand turns of prop)

**NOSE SECTION (CONTINUED)**

- Nose Landing Gear ----- CHECK attachment to fuselage
- Nose Tire ----- CONDITION, proper inflation 22 psi
- Tow Bar ----- Disconnected and stowed
- Wheel Chocks ----- REMOVE
- Cowling ----- CHECK condition, all screws installed
- Air Inlets ----- CHECK all unobstructed
- Propeller and Spinner ----- CHECK condition, security
- Pitot tube ----- CLEAN & OPEN
- Oil & Coolant Radiators ----- CHECK unobstructed
- Oil & Coolant Radiator Block-offs ----- INSTALL or REMOVE as required by ambient conditions

**ACRONYMS**

AOA – Angle of Attack  
 EFIS – Electronic Flight Information System  
 EMS – Engine Management System  
 ESP – Electronic Stability and Protection  
 MFD – Multi Function Display  
 PFD – Primary Flight Display

## PRE-START

- Passenger Briefing ----- PERFORM
- Baggage ----- RESTRAINED
- Safety Belts ----- FASTENED & SNUG
- Canopy ----- LATCHED
- Throttle ----- CHECK FRICTION
- Fuel Shut-Off Valve ----- PUSH DOWN/ON
- Strobe Lights ----- ON (Omit until after start if battery low)
- EFIS Battery Backup Switch ----- **MASTER DEPENDENT**
- Master Switch ----- ON
- Fuses ----- CHECK none illuminated

## START

**CAUTION.** Do not start if oil temp is below -13°F or ambient above 120°F

- Brakes ----- TEST & HOLD
- Lane A&B ----- BOTH ON
- Lane A&B Fault Indicator Lights ----- **ILLUMINATE**, EXTINGUISH  
(If after 5 seconds, a light flashes/illuminates, or failed to illuminate initially, abort start and refer to POH 3.2.1 “Lane Fault Indications” – **RED=Don’t Fly/Land**)
- Fuel Pump 1 Switch ----- **ON**
- Fuel Pump 2 Switch ----- **OFF**
- Throttle Position ----- **40%**
- Propeller ----- CLEAR
- Ignition Key ----- ENGAGE (KEEP ENGAGED UNTIL 2000 RPM)
- Throttle ----- REDUCE as required (2,000 RPM Minimum)
- Oil pressure ----- CHECK 12 psi within 10 seconds or shutdown
- Throttle ----- Above 2,500 RPM for 5 seconds  
Ammeter increases as 2<sup>nd</sup> generator comes online
- Avionics Switch ----- ON
- Landing Lights ----- AS DESIRED
- Fuel Pump 2 Switch ----- **ON**
- EMS Backup Battery Switch ----- **CHECK OFF**
- Throttle ----- **Less Than 2,500 RPM until oil above 120°F**

## PRE-TAXI/TAXIING

- Engine Gauges ----- CHECK
- Flight Instruments ----- VERIFY, **ESP OFF** for Maneuver Flight
- Taxi Throttle ----- **Less Than 2,500 RPM until oil above 120°F**

## BEFORE TAKEOFF RUN UP

- Brakes ----- HOLD
- Flight Controls ----- FREE & CORRECT
- Flight Instruments / Garmin650 ----- CHECK/SET
- Fuel Shut-Off Valve ----- CHECK DOWN/ON
- EFIS Fuel Quantity Indication ----- CHECK
- Trim and Flaps ----- SET for takeoff
- Canopy ----- LATCHED **FULLY** CLOSED
- Minimum oil temp ----- **120°F**
- Control Stick ----- FULL AFT

## LANE and IGNITION (5K, 4K, LaneA, LaneB, 2K, AOK)

- Throttle ----- FULL Fwd (smooth ops, RPM approx 5,000)
- Throttle ----- 4,000 RPM
- Lane A ----- OFF (Max drop 180 RPM)
- Lane A ----- ON, then ensure Fault Light Extinguished
- Lane B ----- OFF (Max drop 180 RPM)
- Lane B ----- ON, then ensure Fault Light Extinguished
- Throttle ----- smoothly to **2,000 RPM**
- Engine Gauges ----- CHECK

## FUEL PUMPS

- Fuel Pump 1 ----- OFF wait 5s, fuel pressure 40 to 55 psi
- Fuel Pump 1 ----- ON
- Fuel Pump 2 ----- OFF wait 5s, fuel pressure 40 to 55 psi
- Fuel Pump 2 ----- ON
- Fuses ----- CHECK none illuminated
- Seat Belt, Pilot and Passenger ----- FASTENED & SNUG
- Takeoff Briefing and **Abort Plan** ----- REVIEW

## TAKE-OFF (Normal)

- Flaps ----- UP
- Control Stick----- Halfway between neutral and aft
- Throttle-----Smoothly FULL OPEN
- Stabilator Control----- Hold back pressure on control to **RAISE NOSE** just clear of ground, release as needed
- Lift Off ----- 50-55 KIAS
- Climb-----75 KIAS (V<sub>Y</sub>)
- Trim ----- AS REQUIRED

## TAKE-OFF (Short/Obstacle)

Normal take-off with the following exceptions:

- Field Condition -----ENSURE No Gravel/Rocks (protect prop)
- Flaps ----- HALF
- Brakes ----- HOLD until application of full power
- Climb----- 60 KIAS (V<sub>X</sub>) until clear of obstacle

## TAKE-OFF (Soft Field)

Normal take-off with the following exceptions:

- Flaps ----- HALF
- Stabilator ----- Back pressure, hold nose slightly higher
- After Lift-Off----- LEVEL FLIGHT, climb V<sub>X</sub> to V<sub>Y</sub>  
**WARNING – The aircraft will lift-off at very low IAS. Stay in ground effect until reaching V<sub>X</sub> or higher**

## CLIMB

- Throttle----- FULL  
**5,800 RPM Max 5 minutes**  
**5,500 RPM Max Continuous**
- Airspeed  
 Best Rate 75 KIAS, Flaps ----- UP  
 Best Angle 60 KIAS, Flaps ----- HALF  
**Cruise-Climb 85 KIAS**, Flaps ----- UP
- Engine Gauges----- CHECK
- Trim ----- AS REQUIRED

## CRUISE

- Flaps-----CHECK UP
- Throttle----- SET RPM to cruise power (**5,500 RPM Max**)
- Trim----- AS REQUIRED
- Engine Gauges ----- CHECK  
**Refer to POH 7.2.1 regarding fuel consumption**

## DESCENT & APPROACH

- Throttle----- REDUCE (**Avoid prolonged idle throttle**)
- Flight Instruments----- SET
- Airspeed ----- AS DESIRED
- Engine Gauges ----- MONITOR
- Flaps----- UP (above 82 KIAS )  
 AS DESIRED (below 82 KIAS)

## BEFORE LANDING

- Seat Belt -----FASTENED & SNUG
- Brakes----- CHECK firm then release
- Lane A & B ----- CHECK BOTH ON
- Lights-----ON
- Fuel Pump Switches ----- CHECK BOTH ON
- Flaps----- AS DESIRED (below 82 KIAS)
- Airspeed -----55-60 KIAS (per Flap setting)
- Trim----- AS REQUIRED
- Throttle----- AS DESIRED to control rate of descent
- Touchdown ----- MAIN WHEELS FIRST
- After Touch Down  
 Stabilator----- Gradually transition to FULL AFT as speed decreases to **keep nose wheel off the ground**  
 Brake ----- AS REQUIRED **after nose wheel down**

## LANDING (Obstacle)

Normal landing with the following exceptions:

- Flaps ----- FULL DOWN
  - Airspeed----- 55 KIAS
  - Throttle----- AS REQUIRED to control rate of descent
- Slip aircraft as necessary to increase rate of descent

### WARNING

A relatively high rate of descent is possible in this configuration when at full gross weight and the throttle closed.  
If airspeed is allowed to decrease below 55 KIAS, level off can only be assured with an application of power.

## LANDING (Balked)

Normal landing, at the time of Go-Around:

- Throttle----- FULL OPEN
- Flaps ----- HALF
- Airspeed  
Best Angle 60 KIAS, Flaps ----- HALF
- When clear of obstacle:  
Best Rate 75 KIAS, Flaps ----- UP

## SHUTDOWN

If hot weather, run at 2,000 RPM for 2 minutes to cool engine

- NAV & Landing Light Switches ----- OFF
- Avionics Switch ----- OFF
- ELT----- CHECK OFF
- Throttle----- **Smoothly** to idle
- Lane A & B ----- BOTH OFF
- Fuel Pump Switches ----- BOTH OFF
- Engine/Total Hours ----- RECORD
- Master Switch ----- OFF
- Control Locks ----- AS NEEDED
- EFIS Battery Backup Switch ----- **CHECK MASTER DEPENDENT**
- EMS Backup Battery Switch ----- **CHECK OFF**
- Switches ----- **DOUBLE CHECK ALL OFF**

