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_{SO} ---------- 41	**V_{FE} ---------- 82**
V_S ---------- 45	**V_O(850lbs) ----- 72**
V_X --- 60(½ flaps)	**V_O(1320lbs)---- 90**
V_G ---------- 63	**V_{NO} ---------- 108**
V_Y ---------- 75	**V_{NE} ---------- 136**

N317VA PRE-FLIGHT

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

2023-Aug-12, Rev 17

PRE-FLIGHT

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

N317VA PRE-FLIGHT

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

2023-Aug-12, Rev 17

PRE-FLIGHT

N317VA START/RUN-UP

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 2nd 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

2023-Aug-12, Rev 17

START/RUN-UP

MANEUVERS

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_Y)
- 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 (Vx) 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_X to V_Y

WARNING – The aircraft will lift-off at very low IAS. Stay in ground effect until reaching V_X 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 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**

2023-Aug-12, Rev 17

MANEUVERS

MANEUVERS

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)

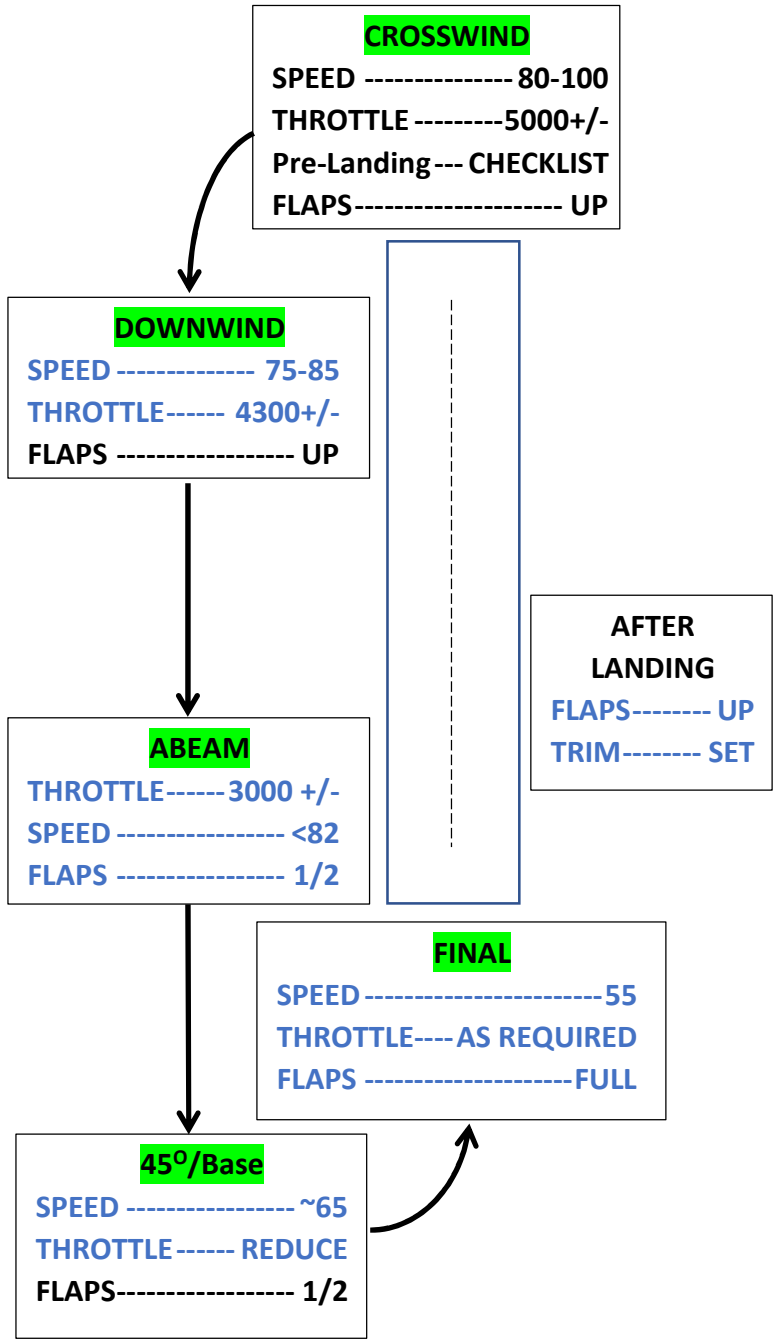
Normal landing, at the time of Go-Around:

- 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 2,000
- 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**



2023-Aug-12, Rev 17

MANEUVERS