



May 2020

**LSA TRANSITION COURSE**  
**Rotax 912 ULS and 912iS Sport 100 HP Engine**

**LESSON ONE**

**PRE-FLIGHT**

1. Face the plane into the wind prior to opening the canopy.
2. If the plane does not fly for a few days, the engine needs to be BURPED!
3. **BURPING THE ENGINE:** While facing the plane, turn the propeller counterclockwise about 20 times. This will bring the oil back into the oil canister for a proper oil reading. Turning the prop clockwise can damage the gear box.
4. Oil must be on flat part of stick. Never add a full quart since the Rotax only holds three quarts total.
5. **COOLANT:** The coolant bottle should be about one third full. Occasionally, remove the top cowl and add coolant by removing the coolant cap. Place a drop of engine oil on the brass center ring to prevent damage to the oil cap gasket. Inspect and replace the oil cap gasket every few years. Coolant is 50/50 distilled water and GM Dexcool.
6. **TIRE PRESSURE:** Remove the wheel pants. Occasionally check the tire pressure and brake linings. Main tires-26 lbs., Nose tire-20 lbs. Brake Linings-1/16th inch or more.

**STARTING**

1. Follow the instructions on the checklist.



**TAXIING**

Rotax wants the idle set at 1800 RPM to protect the gearbox. This high idle will result in fast taxi speeds. Apply brakes to bring the plane almost to a stop, then

resume normal taxi. This technique will cause the brake pads to last longer. The idle may be as low as 1400 RPM for one minute. This low idle is only used for seaplanes so they will not hit the dock.

## LESSON 2

### TAKEOFF

Flaps-10 DEGREES-Oil temperature-122 F minimum

Apply full power in three seconds. Verify engine is developing full power by seeing 5100 RPM on the tachometer during the beginning of the takeoff roll. Apply slight back pressure. Count one, two three, apply more slight back pressure, Count one, two three, apply more slight back pressure and wait for the plane to takeoff. After liftoff release some back pressure and accelerate to Vx 67KIAS while in ground effect. After obstacles are cleared use best rate of climb (Vy) 72 KIAS.

(Rotation speeds should have been 45-50 KIAS, but I prefer you do not look. Ask your CFI what your rotation speed was.)

### CLIMB

Best rate Vy is 72 KIAS.

At 500 AGL, retract flaps

At cruise altitude-turn off aux fuel pump.

On hot 90 degree days, climb at 85 KIAS for cooling.

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You will not have a departure stall if you can see over the nose

## LESSON 3

### CRUISE

When using 100LL use a minimum of 5000 RPM to assist lead dispersion.

When using 93 oct premium auto gas, you need to mix half 100LL from March first to May first to prevent vapor lock from winter grade auto gas that can occur on hot days.

The prop is turning at 2200 RPM when the crank shaft is turning at 5320 RPM due to the 2.42:1 gear box

High cruise is 5350 and will result in about 5.5 GPH and 117 kts true airspeed at 2000 feet. This is about 80% cruise.

## LESSON 4

Power on descents:

4000 RPM will protect the engine on descents

The Traffic Pattern:

4000 RPM on downwind leg will allow aircraft to slow to (Vfe) flap extend speed of 75 KIAS, add 10 degrees of flap. If the plane does not slow down soon enough, close the throttle, add 10 degrees of flap and add half throttle. Abeam the number reduce power to 3700 RPM, add 10 degrees flap and re-trim aircraft.

Turn base leg, reduce power to 3400 RPM and ask:

Am I too high, am I too low, am I just right,  
Do something!!!

You should be about 500 AGL when turning final. **Lower the nose** when turning final-maintain 60 KIAS +5-0

DFGAP, DeFined Go-Around Point

AT 200 feet AGL you must be in a stabilized approach. If you are not lined up with the centerline of the runway, in your final flap configuration, at 60-65 KIAS, then go around.

SHORT FINAL

Reduce the power and slow to 55 KIAS, transition to level at the height of a car, and look down the runway to the end. As the plane settles add some back pressure to keep the end of the runway just sitting on top of the nose cowling....wait...wait. You want to FLY on at about 50 KIAS and not stall on at 39KIAS. When the main wheels touch reduce the power to idle, hold the nose off the runway until excess speeds subsides and gently fly the nose wheel to the ground.

Taxi at the speed of a walk. **Park the plane into the wind prior to opening the canopy.**

Hold the throttle at idle, just off the spark and master. Turn on the strobe. As you walk away from the plane make sure the strobe is not flashing.

Shut down:

Reduce throttle to idle

Turn off electronic ignition one and wait one second

Turn off electronic ignition two

Turn off all switches

Record the engine time.

Turn off Master Switch, put strobe on

We put on the strobe because it is easy to put the master switch back on with your foot as you get out of the aircraft. You will see the strobe as you walk away and know the master is on.

## LESSON 5



### LANDING-Earn your Bristell Challenge Coin

Your Landing Doctor CFI will teach you GPA, Ground Proximity Awareness training to make you “Master and Commander” during crosswind landings.

You can read about GPA training at [www.thelandingdoctor.com](http://www.thelandingdoctor.com)

You will also learn about DFGAP our defined go-around point. If your approach is not stabilized at 200 feet AGL, this is your go-around point.

**You earn a Bristell “Art of Defying Gravity” challenge coin when you can land on the back of the main gear on the designated touch down spot, but beyond the numbers, on the centerline, with no crab, on a day with a minimum of 6 kts crosswind, travel 300 feet down the centerline with the nose slightly off the runway, then initiate a go-around without letting the nose get too high, and accelerate to 67 KIAS Vx within ground effect.**

## LESSON 6

Full Flap landings from now on. Touch down 45 KIAS, but do not look. Ask the CFI what your speed was when the wheels touched.

PLC, Personal Limitations Check List.

Your Landing Doctor CFI will assist you in completing your PLC. Flying within your personal limits will keep you and your loves ones safe!