



## Stick & Rudder Aviation Lesson plan

for Kitfox SLSA (tailwheel configured)

### Objective:

Safe, consistent, and proficient operation of a tailwheel aircraft in winds up to 15mph, on paved and un-paved runways, with varying runway lengths & widths, and with non-standard traffic patterns and approaches.

### Approach to training:

“This is not a test” – “you are not here to please me” – “you are here to learn and have fun.”

I expect you to always try to fly the aircraft – I will cover for you if you get into trouble.

This program takes you as long as it takes – do not take the minimum hours required as a stopping point (or a reflection on your ability).

You don't want to bend my aircraft – nor do I, as I need it for my business – therefore lets just train until we both feel secure you will be a safe tailwheel pilot.

### Prerequisites to operate solo:

Completion of this lesson plan

Minimum 10 hours in make and model with a tailwheel endorsement

Student pilot certificate or greater (student pilots must also have solo endorsement, airports specified, and maximum wind limits).

Requires 10 takeoffs and landings PER month at at-least 3 different airports to maintain proficiency (continued rental authorization).

This lesson plan will meet the requirements of a Biannual Flight Review



## Assumptions:

Minimum 2-3 hour lesson lengths (dependent on student's absorption ability & physical endurance)

Suggested reading or watching prior to first lesson:

<http://www.stick-rudder.com>

(thoroughly review the whole site)

Specifically the pages containing "Taildragger" technique documents, Rotax operational videos, and the Glass panel function and operational videos

## Lesson 1:

Boise airport security and hanger operations

Moving aircraft by hand

Pull cowl – review Rotax engine components and operation limitations.  
Suggested watching the Rotax pre-flight/operation video listed above

Pre-flight of a fabric, tailwheel, and Kitfox-brand aircraft.

Review Kitfox POH in regards to normal procedures, systems, weight and balance, limitations, and emergencies.

Instructor runs the radios – student flies!

Review of Class C and Tower-controlled field operations

Review of airport markings

Review of radio phraseology

Taxi practice – memorize sight picture

"Stick back" - keep the little tire, in the rear, on the ground



Instructor-demonstrated normal takeoff (student performs all subsequent takeoffs)

Air work:

Straight & level – memorize sight picture

Varying bank angle turns – leading to steep turns (45° bank)

Slow flight (5 mph above stall) – review AOA

Stalls all configurations, in turns, power on & off – confirm docile

Canyon turns – coarse reversal – slower the airspeed = lower the turn radius, therefore less space & lower bank angle required

Simulated emergencies – gliding to off-field landing

Ground reference maneuvers

Review of Uncontrolled field operations

Recommended power, airspeeds, configuration, and rate of descent at various points in the traffic pattern – to set a standard baseline.

Instructor-demonstrated normal 3-point, no-cross wind landing (student performs all subsequent landings)

3-point landings only – wheel landings demonstrated and practiced will be in lesson 3

Average 10 landings this lesson



## Lesson 2:

More takeoffs and landings – training rule #1 “you can't pass an airport without landing at it”.

Student flies – instructor runs the radios, and glass panel (unless requested by student or to meet BFR requirements).

All different airports from Lesson 1 – usually shorter, narrower, sloped, with varying runway markings (non-existent centerlines), and with obstacles. Some grass & dirt.

Average 3 takeoffs and landings per airport – to be a good neighbor (minimizing noise) and to vary the ground references, traffic pattern direction, and sight picture. 25+ airports within a 60 mile radius of BOI.

Goal: Looking for consistency in takeoffs and landings

Remember – the follow through on landing – target speed, power comes to idle (< ½ wing span up), as stick comes back (to flair close to the ground – looking way down the runway to see the sink or balloon), as wing stalls, as all three wheels touch, as stick continues into your belly (to hold the tailwheel to the ground for steering).

If you can see all the runway in the flair – you're probably going to land on the mains and bounce – remember the taxi sight picture.

Review of forward slips (even on base), and over-shoot final (to remain stabilized) as another landing tool

In-flight emergency review - gliding from a distance, picking a emergency landing area, aim point versus landing point, engine failure in pattern, and the “impossible turn” (on upwind returning to land on the opposite runway (tailwind?).

Average 20 landings this lesson



### Lesson 3:

**If high gusty winds** – we stay in the Treasure Valley and seek out cross-winds. Landing in a cross wind is a subtle forward slip (reviewed in previous lesson) – to remove any sideways drift (but the wheels must roll onto the runway in the direction of travel).

In a 3 point landing – land on 2 wheels first (the upwind main and tailwheel), then allow the downwind main to settle onto the runway as the crosswind component effect is diminished with loss of airspeed.

Wheel landing demonstrated and practiced – student cautioned that this technique requires a higher degree of skill and timing, and exaggerates any lack of proficiency. Read [taildragger.com/documentation](http://taildragger.com/documentation) - “the great debate”.

Remember – you still have to transition to a 3-point landing some point to taxi to the hanger

Averages 20 landings this lesson

**If no winds** – we head into the backcountry for Mountain Flying proficiency training

Density Altitude issues and loss of performance

Reading the effects the weather has – on the terrain – on the air you fly in

Navigating by pilotage (GPS is a backup) – review (not to be memorized) charts and airport directories.



“Shopping” the field

#### Step #1

Runway conditions - always overfly first! (preferably @ your “standard” pattern altitude of 1000’ AGL. Slow down if you don’t feel like you have the room to maneuver.

Look for the slope (with <10mph wind) – “land uphill, takeoff downhill”. There are always exceptions. If the wind is > than 10 mph – one way (landing or taking off) will have a tailwind - therefore, ask yourself “why am I flying in the backcountry – maybe I should sit this one out?”

#### Step #2

Look at the go-around corridor - pick an “Abort Point” (a geographic location or altitude) - where if you aren’t stabilized and maintaining the aim point - the airplane has the performance (and you have the skill) to comfortably go-around for another try. If inside the abort point - you use all your tools and skills to get the airplane on the ground with remaining runway.

#### Step #3

Look at your departure corridor (while shopping from above, NOT after landing with confusing topography). Remember you are taking off the opposite direction you landed (especially with DA considerations - most airplanes can NOT follow the same path as they used for approach).

3-4 hour circuit (tank of gas) – with multiple landings and varying approaches at significantly different and increasingly difficult one-way, short, sloped, un-paved airstrips – all with threshold obstacles and topography constraints.

Averages 10 landings this lesson



#### **Lesson 4:**

Same as above (yet dependent on winds)

#### **Lesson 5:**

I introduce distractions, asymmetry in control, and special abbreviated pattern requests to challenge the student's ability to focus, remain consistent in their flying, react appropriately to aircraft deviations, correct my mistakes, and prove to both of us they are truly pilot-in-command.

Correct any bad habits

Work on areas of weaknesses

Discuss personal minimums (winds & weather) - based on their ability and proficiency

Shortest of the lessons – averages 1½ hours

Averages 10 landings this lesson