Buy versus Rent

Fixed costs of four-seat airplane:
- hangar ($800 per month) or tie-down ($150) at Hanscom
- insurance ($2,000 to $10,000 per year)
- annual inspection ($3,000-5,000)
- cost of capital (3 percent times $100,000?)
- Depreciation ($10,000 to $30,000)

Total of at least $20,000 per year? That’s $200/hour at 100 hours per year. Compare to flight school rental rates.
Owning makes sense...

• fly 200+ hours per year,
• fly away every weekend and let the plane sit (flight school typically charges 3 hours/day minimum), or
• want a pristine airplane and can find a couple of partners

Now you’re the operator as well as the pilot.

Part 91 Subpart E – Maintenance, Preventative Maintenance, and Alterations
Owner/Operator is Responsible

• “The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an **airworthy** condition” (91.403)

• 91.405: “Each owner or operator of an aircraft
  — “Shall have that aircraft inspected…”
  — “Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records…”
  — Must fix or placard INOP anything broken

91.213 - Inoperative Equipment

• For small airplanes:
  — Pilot may placard inoperative equipment if it is not part of minimum required equipment
91.407 - Operation After Maintenance

- Work must be properly signed off and approved
- If flight characteristics may have changed, must be flight tested by at least a private pilot with no passengers onboard
  - Make a log entry in the maintenance records

91.409 - Inspections

- Annual Inspection required in preceding 12 calendar months
- 100 hour inspection required if aircraft used commercially (including for instruction), but jets typically have their own schedule from the manufacturer
91.413 - Transponder Inspection

- Must have been inspected within preceding 24 calendar months to be used

91.207 - Emergency Locator Transmitters

- **Civil airplane** must have one with some exceptions (e.g., air carrier, single-seaters, local trainers)
- Batteries must be replaced if:
  - Cumulative use > 1 hour
  - 50 % of useful life has expired
- Must be inspected each 12 months
91.417 - Maintenance Records

- Must keep records of maintenance on aircraft, engines, propellers, and appliances

14 CFR Part 39

- Airworthiness Directives
  - Mandatory regulations to address unsafe conditions in aircraft, engines, propellers, and appliances
  - Part of the CFR, but not codified
  - Published in the Federal Register (and FAA website)
  - Distributed to appropriate people by FAA
  - Some AD’s allow limited continued flight
Airworthiness Directive

1.6.87

Private Pilot Ground School 13

14 CFR Part 43

- Maintenance
  - Mostly applies to mechanics, but pilots need to be familiar
  - Appendix A section (c) lists 31 preventive maintenance items pilot is allowed to perform
    - (1) Removal, installation, and repair of landing gear tires.
    - (2) Replacing elastic shock absorber cords on landing gear.
    - (3) Servicing landing gear shock struts by adding oil, air, or both.
    - (4) Servicing landing gear wheel bearings, such as cleaning and greasing.
    - (5) Replacing defective safety wiring or cotter keys.
    - ...
## Pilot Preventive Maintenance Requirements

16.687

- Allowed by 14 CFR 43.7
- Must be owner or operator (pilot)
  - No student pilots
  - Not on charter or air carrier aircraft
- Must sign off action in A/C logbook
  - Description, date, signature, cert. number, and kind of cert.

## Too much work?

16.687

- Purchase an airplane and cooperate with a flight school on a “leaseback”
- Depreciation goes to the owner (new tax law: 100% of cost can be written off in first year)
- Flight school becomes the “operator” and will handle maintenance

This is why you can rent a $700,000 Cirrus SR22 for $350 per hour.
Too little work?

- Build aircraft (at least 50 percent) and then you can work on it yourself.
- The American Way:
  - Pilot forms an LLC with a professional builder; the LLC is the “person” who builds 50 percent or more; pilot buys out builder when the plane is complete
  - Pilot goes to factory for “factory-assist” build, bringing 20 different outfits to wear during one week
- Experimentals cannot be used commercially, e.g., by a flight school, and are placarded heavily
- Classically the high performance comes from less redundant structure and less forgiving handling

Renter pilots are still responsible

- Ensure aircraft is airworthy
- Ensure proper documents are on board (A.R.O.W.):
  - Airworthiness certificate
  - Registration
  - Operating limitations (“owner’s manual”)
  - Weight and balance
- Report accidents
91.3 - Responsibility and Authority of PIC

- Pilot in command is directly **responsible** for, and is the **final authority** as to, the operation of the aircraft
- Allowed to deviate from rules in an emergency
- Report deviation *if requested to*

91.7 - Airworthiness

- Aircraft must be airworthy to be flown
- Pilot is responsible for making sure that it is, and for discontinuing flight if no longer airworthy

You can reasonably rely on the flight school for doing the 100-hour or progressive inspections. But abort the mission if you see something broken during preflight!
91.203 - Certifications Required

- Airworthiness Certificate
  - Must be displayed at entrance and legible for passengers and crew
- Registration Certificate

Start Shopping

- Controller.com (jets, turboprops, Cirrus)
- Trade-A-Plane ($25,000 Cessnas and Pipers)
- Barnstormers.com (homebuilt)