

Aftermath: Post-Annual Inspection (Part 1) By [Thomas Turner](#)

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The annual is done, repairs are complete, the modification is installed ... whatever the reason your airplane was in the shop, it's all buttoned up now, and ready to fly -- or is it?

PROBLEM: Any time an airplane has been opened up for inspection, maintenance or repair, the possibility exists that in the process of making all the wrong things right, some right things were made wrong. *Translation:* There may be a few things out of place. *Disclaimer:* Mechanics and inspectors are professionals, and I don't mean to doubt their professionalism, but they are people too and sometimes people make mistakes.

Notes From The Real World...

I've picked up airplanes from very reputable shops -- and even accepted new aircraft from the factory -- only to discover an oversight that affects the safety of flight. Returning an airplane to service is a team effort, and as pilots we need to accept at least some of the responsibility to determine an airplane is ready to fly when it comes out of the shop.

Self-Defense (Step 1): PAPERWORK

- **ARROW**--Airworthiness Certificate, **R**egistration, **R**adio Station License (only if a U.S.-registered airplane is to be flown outside the United States), **O**perating Limitations, and **W**eight and Balance/Equipment List. All these things need to be in a U.S.-registered airplane.
- **Logbook Entry**--The airplane logs need to have a signed statement listing all the work that was done, engine items in the engine log(s) and everything else in the airframe log. Even if the logbooks won't be carried in the airplane (not required in the U.S.), the pilot is still responsible if he/she flies the airplane without the proper endorsements.
- **Yellow tags**, [Form 337](#) (Alterations paperwork), and all [Supplemental Type Certificate](#) (STC) paperwork must be in the logbooks.
- **Return to Service statement**--Similarly, a signed logbook entry stating that the airplane is airworthy and returned to service must appear in the books.

Self-Defense (Step 2): AIRWORTHINESS CHECK

- **Safety wiring** -- Check that all is reinstalled properly. Complete familiarity with your airplane's engine compartment and interior is a big help here -- if you're not all that familiar, bring a friend who is.
- **Access panels** -- Check *all* the nuts and bolts for security, paying special attention to anything else that was likely moved or removed in the shop.
- **Fluids** -- Check them and look for stains. There shouldn't be any leaks of fuel or oil, so bring any drips or puddles to your mechanic's attention and get an explanation.
- **Fit and finish** -- The ergonomics pre-flight. Check the cabin. The seats were probably removed, be sure they move correctly and lock in position. Make sure that items like manual landing gear extension handles aren't obstructed by improperly re-installed interiors.

Inside Information: Gear extension obstruction is a common problem in post-maintenance Beechcraft airplanes.

BOTTOM LINE: Make your post-annual pre-flight one of the most detailed inspections of your life -- because it's the only *independent* "quality control" your airplane will get before you take to the sky and the only reason you should consider your airplane "safe."

Next week, we'll take a look at your other post-annual duties -- as test pilot...

The Post-Annual Inspection (Part 2 -- Test Flight) By [Thomas Turner](#)

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Your mechanic should have test-run the engine(s) before signing off the airplane as airworthy, but it's unlikely that he or she test flew the airplane.

PROBLEM: Things might not have been thoroughly checked, or switches might simply not have been returned to what you consider to be the "normal" position.

Defense: Budget time to complete a *thorough* engine check and to take a short, day, VFR test-hop before flying your airplane away from the shop.

PREFLIGHT

- **Powerplant** -- All engine, fuel system, and propeller operation using the Pilot's Operating Handbook (POH) procedures;
- **Controls** -- Operation of all systems like trim, flaps, cowl flaps, carb heat, deicing systems, and flight controls; and
- **Electronics** -- All avionics including radios, navigation devices, autopilots (there's likely an autopilot inspection checklist in the POH supplement, so use it), lightning detectors (look for false returns caused by uninsulated wiring), radar, etc.

Hint: It helps to make a list *before* departing terra firma of things you'll check once airborne. Then, use the list as a guide while in flight.

FLIGHT TEST

After a *very* thorough *Before Takeoff* check, take off and climb to a safe altitude. Important: Bring a safety pilot with you to look for traffic while your eyes are in the cockpit checking systems. Your altitude and distance from the field should allow you to stay clear of pattern traffic, but close enough to make it back if you lose power. Check control feel, engine operation, and the use of all systems and avionics just as you had on the ground and confirm a lack of surprises while in the air. Finish your short test flight by landing, taxiing back to the shop, and then completing another detailed inspection of the airplane.

Bring any discrepancies to your mechanic's attention right away, and get them fixed (and re-tested) before accepting the airplane.

Notes From The Real World...

Here are just a few things I've found when picking up different airplanes from different shops. The the list proves -- beyond a shadow of a doubt -- that, every now and then, a little paranoia is a good thing...

- Inaccessible manual landing gear extension handles, because of improperly installed interiors.
- Fuel selector handles that won't move to the "OFF" position.
- Inoperative alternators.
- Safety wire missing on emergency exit window latches.
- Mounting screws missing on the underside of ailerons.
- Ailerons mounted so that they could not reach full deflection.
- Landing gear doors reversed (right door on the left wing and vice versa), preventing gear retraction.
- Instrument air (vacuum) regulators adjusted well out of tolerance.
- Flap limit switches out of position, inhibiting flap movement.
- Autopilot disconnect switches that weren't hooked up.

BOTTOM LINE: Mechanics are people too -- and are subject to the same human error as pilots. Find and depend on a reputable maintenance shop, but don't forget it's your skin, and your responsibility to make sure the airplane is ready to fly.

