TAKIN' CARE OF BUSINESS
BY
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Every pilot develops a series of habits for managing the routine of cockpit business. There are probably as many management styles as there are pilots. It doesn't make a particle of difference whether you keep the scale on your MFD on 30 miles instead of 40, or whether you count down miles to go or count up miles already flown, on your howgozit log. Nonetheless, I thought I might share some thoughts about efficient ways of handling departure, cruise, approach, and landing that I have come up with during my years of punching long holes in the sky.

Many pilots do a fair amount of hand-flying, but I like to have my autopilot turned on before takeoff so that I can engage it as soon as we get trimmed up and headed out on the first portion of the flight. After that, it's a matter of keeping a reasonable pitch attitude (My autopilot doesn't make climbs to pre-programmed altitudes.), adjusting the power, and keeping the mixture lean enough so that we'll have some fuel left when we get to cruising altitude. In my spare time, I even sometimes take a glance out the window to look for traffic!

Setting the nav and comm radios up as far ahead as possible makes it easier to progress through frequencies and waypoints as the airplane makes its way up to the cruising portion of the flight. More of my attention is available for listening for my call sign on the radio and for

trying to comply with the departure procedures coming in from the controllers. I can also maintain better situational awareness about where I am, versus where I want to go and where other nearby airplanes are and what they're doing.

In my opinion, a pilot should never call ready for takeoff until he has made a last-minute survey of his panel, checking the transponder code, the departure frequency, and the initial climbout instructions. Is your heading bug set to the initial assigned heading? Is your altitude bug set to the initially assigned altitude? It's a lot easier to get all that stuff out of the way while you're sitting in the runup pad than while you and several thousand pounds of aluminum are busy trying to grab some altitude and get clear of somebody's terminal area.

A lot of the organization that makes life simpler for the pilot can be accomplished by having mini-checklists that are cued by various events in the flight. When I take the active runway just before takeoff, I always go through a three-item before-takeoff check: heading indicator set to match the runway bearing (I discovered that I was about to depart on the wrong runway a few days ago when I performed this habitual check!); transponder squawking altitude, and timer set and running. I also write down my time off, using the Greenwich time displayed on my GPS screen.

Reaching 1000 feet triggers another mini-check. I know that there are 5 items to check, some of which do not necessarily apply to the machine I'm flying. If the "gear up" check comes up in a fixed-gear airplane, I just check it

off and get on with my life. The five items I check are these:

Gear	up
Flaps	up
Power	back to METO (maximum except takeoff)
Prop	set for climb RPM
Boost pump	off

Leveloff is another place where I get a little busy. That's when I re-trim, set the altitude hold, check the mixture, check the temperatures and close the cowl flaps, if I'm satisfied with the temperatures. I select the manifold pressure and RPM combination I plan to use, then I wait for the airplane to accelerate to its cruising airspeed. When the airspeed stabilizes, I recheck the cylinder head and oil temperatures, then I fiddle with the mixture until I'm satisfied that the engine is running smoothly and I'm not burning more gas than I have to. Fuel flow, at this time, should match closely the value I used during my preflight planning. The procedure used for leaning is probably better left for another essay, but my partners and I have agreed that we will attempt to keep the head temperatures at or below 380°. That's the goal of setting the mixture. It's also the reason I usually sacrifice 2 or 3 knots of airspeed and keep the cowl flaps open most of the time during the summer months except during descents.

Every time I get a handoff, I write down the new frequency (Okay, I'm old-fashioned.), tell the present

controller bye-bye, switch to the new frequency, break open the squelch momentarily to confirm that I have the correct settings on my radio and audio panel, then call the new controller, giving him my identity and altitude. The new guy usually replies with a current altimeter setting, which I write down and read back. I then put the new reading into the kollsman window and then it's time for a break.

When I arrive at a check point, I write down the time over that location, compare it to my estimate to see how consistent my ground speed has been, and then I check the new course and distance shown on the navigation computer with the numbers on my flight log. Believe it or not, I have been known to omit fixes and/or to miscopy numbers on my howgozit. The worst one was in Pennsylvania, when I had written something like 30 nautical miles for the next leg and the navigator said we had 260 miles to go. At times like that, it's good to have a fuel totalizer, as well as a "plan B," in case you're going to be running short of go-juice by the time you complete the leg. After the navigator shows a constant speed on the new heading, I calculate the estimated time of arrival over the next waypoint, write it down, and then reward myself by taking another break.

Identifying when it's time to start downhill is a task that some pilots do better than others. Some of us sometimes arrive over the destination airport with lots of extra airspeed and/or altitude. Starting a descent in a timely manner makes maximum use of the energy the airplane has stored in the form of altitude. It also makes possible a reasonable rate of descent without exceeding any

safe airspeed limits. There are various rules of thumb that help out. I usually like to descend at 500 feet per minute; so I multiply the number of thousands of feet I have to descend by 2 and that's the approximate number of minutes I should be short of my destination when I start down. On days when I'm really alert, I even put in a little bit of a fudge factor for the slightly higher ground speed we're going to be making good during the descent. The best plan I had before the days of GPS was one I used with my old "C" model Mooney. I simply allowed 5 miles for every 1000 feet I had to descend, and that worked out right on the money.

I now have a hand-held GPS that has a very handy vertical profile planner. I have it programmed to bring me to 1000 feet above the airport about 5 miles out, at a rate of descent of 500 feet per minute. When I approach this profile, a little electronic glideslope appears on the screen. All I have to do is maintain whatever rate of descent keeps the needle somewhere near the center of the display while adjusting my power to keep the speed in the green. If ATC has some reason why they can't let me down when and where I want to, at least the device has alerted me that I'm destined for a steeper-than-normal descent when they finally get around to letting me down. Most all of the modern GPS navigators have some form of this vertical nav function, but I like the glideslope format because I can constantly update my angle of descent without having to leave the nav page of my primary navigation unit on the way down. Remember, cutting way back on the power

while making a high-speed descent is a good way of shock-cooling your engine, reducing your time between overhauls. I have been known to use the magic word, "unable" when some controller asks me to come bombing down like some oil burner with his speed brakes out. You may get some extra vectoring while you're shedding altitude, but the extra time spent in this practice will probably pay for itself in prolonged engine health.

If I'm performing an instrument approach, reaching the final fix inbound triggers another of those mini-checks: start the time, confirm that I'm on course, start my descent, and notify ATC that I'm final-fix-inbound. And another one I'm fond of, that's probably the most important one of all: confirm gear down before descending from your final fix, the MDA, DA, or DH, as well as the first time you observe yourself lining up on the runway on which you intend to land. And when you cross a middle marker, the tacky little dit dah tone should say to you, "check GEAR, check GEAR, check GEAR." AND YOU SHOULD DO IT!

Sergeant GUMPS completes the mini-checks for me: "gas, undercarriage, mixture, prop, and seatbelts." One of my long-suffering FAA inspector friends, who claims that she spends an inordinate amount of time doing paper work on gear-up incidents, says she'd like to change GUMPS to mean, "Gear down, Undercarriage down, Make sure you have your gear down, Put your gear down, and Sure you got three greens?" Her point is that forgetting to put the rollers

out into the breeze is the only item on that list that is really likely to lead to a life of regret.

Listing these details makes it appear that we pilots keep ourselves pretty busy during cross-country flying. In truth, there are long intervals of inactivity on a typical trip. HAL flies the airplane, and we sit there looking out the window, thinking our own thoughts. I'm sometimes ashamed to enter the time in my logbook.

They say that meaningful repetition is the essence of learning. The items I've listed here are often repeated in the life of a pilot, and many times we don't think too much about the tasks we perform on a hour-by-hour basis when we travel by airplane. Technology has changed the character of what we do since the days when we had to divide our cumulative mileage by our cumulative time, to calculate our average ground speed, then check it against the calculated minimum we needed, to get where we were going with sufficient fuel. But I think it's mostly a matter of degree. These days I do the same things with the help of machines that maximize the hours of boredom that fill in the gaps between the moments of sheer terror that make up the life of an airborne travelin' man.