

## NOTES ON API OPERATING EXPERIENCE

Here, collected in one spot, are some observations based on our operating experience of the past several years. They're part of the 20 years or so of total API experience we seek to keep green in the minds of existing members, and pass on to new members, one way or another.

Lumped all together, our experience might sound like it's all the result of a chronic, incident-filled, long-playing disaster. Nothing could be further from the truth: most members work out fine, and like most flying itself, API history is quite uneventful.

Bring up these subjects, though, and out will come some of our organizational "flying stories". We do have examples, some of them beauts, to illustrate the points made here. Rather than to simply retell them all, we've tried to pull out their essential lessons for presentation. The sermonizing you'll find here and there is somewhat unavoidable: do not be put off by it. No presumption of reader ignorance or guilt is intentionally made. Take it just as an indication of our thinking on the various subjects, and if you concur, let it go at that.

Should you catch a glimpse of yourself in one of our mirrors, however, you should take what we say quite seriously. In many cases, we already know what's going to happen next: many times, we've been there already. Managing a fleet of airplanes is a highly educational experience. Take advantage of what we've learned!

## 1. BEING KIND TO MACHINERY

It's a matter of considerable pride to fly a solid, well-maintained aircraft which has not been abused like a taxicab or a rental car. Most new members are quite aware of this and try hard not to abuse the engine or prang the nose wheel. Neither do they knowingly break the hardware, tweak the knobs off the radios, mess up the upholstery, or do any of the other damnable things casual renter pilots do. Even so, some people are rougher on the equipment than others, or fail in various ways to keep faith with the intentions of the designers. Nothing on an airplane is any stronger than it absolutely has to be (with the possible exception of the inside door handles on the 172, which are so big and heavy that they ought to be listed separately on the weight and balance sheet!)

Our most common problem, by far, is teaching people how to be kind to the airplanes, especially if they are former renter pilots who have been shielded to some extent from the painful realities of owning and maintaining an aircraft. Unlike FBO's, we don't trade the planes while still new enough not to show too many signs of the beating they may have taken: we keep them for the bulk of their reliable life, getting to know them and coming to rely upon them as only owners can. It's not just a question of saving money. Aircraft require a lot of time and attention in order to become what the patent office calls "a union of cooperating parts." When taking off IFR, we like to trust the aircraft, and have full knowledge of all its idiosyncracies, something that takes at least a year and several \$K worth of puzzle-solving sessions in the shop to acquire. We also like to know that nothing has been abused, overstrained, or compromised as

a result of operation by others, which is the main reason to limit the membership to people we can trust. As a member of API, you owe it to the rest of us, as well as yourself, to learn the fine points of running and caring for your aircraft. This will be invaluable knowledge if you ever aspire to a more individual form of ownership, as some of us do.

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With an airplane, there's no such thing as simply throwing money at it to keep it fixed, and no such thing as indulging in the unfortunate, all-too-common disdain people show for picking up any detailed knowledge about their cars. Airplanes are elegant machines, designed close to the limits. To be pilot in command of one of these gems, even in this day and age, you absolutely need to know as much about it as an early cross-country automobilist needed to know about his Winton or Hupmobile back when autos that worked at all were pushing the state of the art. You have to be able to do as well with your airplane.

The larger engines, especially, can't take abuse: they can be ruined in just a few minutes at the wrong settings. Oil level and air flow<sup>and fuel-flow</sup> for cooling are critical. The controllable-pitch props are delicate, and cost a fortune. <sup>on the 206</sup> Electrical systems sometimes develop subtle troubles. The gear is complicated, and critical.

Indeed, you've got to know it all well enough so that you'll do everything exactly right, every time, no fooling, and be able to sense trouble as well, long before it gets to be serious. When trouble does occur, you need to make a correct move, a matter requiring some intelligence and thought. Blindly following some rote procedure foisted on you in your earlier training may not be what the situation calls for at all. In the air, you've got to "fly the airplane!" On the ground, you have to use good sense! For owners, wing tips, props, and nosewheels should be a virtually unnecessary expense!

There's a lot to learn. You should learn how to get a prompt start without grinding down the battery or burning up the starter, how to come and go from a gravel strip without dinging the prop, how to manage a steep descent without shock-cooling the cylinder heads, how to land without wearing out the damper and the bearings in the nosewheel, how to steer on the ground without unmercifully riding the brakes, how to sense and head off electrical system trouble, and so on. (The list is fairly long).

We recognize that many people aren't mechanically inclined, and that some of these details may not be all that fascinating to them. Yet, we think it important for anyone who flies our airplanes to know how to take care of them, and to be aware of the processes set in motion by ignorant or hamhanded operation. Get out the airplane manuals and read them every once in a while; when opportunity presents, fly with the other members and observe what they do; listen to what the mechanics have to say. Ask, always ask, if there's something you are wondering about.

A lot of knowledge is available within the organization and its shops. You've got to have it to fly safely, and to meet your obligations to the rest of us. (You too may have to intervene with the ignorant mechanic about to plug 28 volts

into the 14 volt electrical system, or the line man out to crunch the gear doors with his towing dolly!) Pay attention to our maintenance reminders, and especially when it's under your command, keep an eye on your valuable airplane!

In insisting upon this, our object is straightforward. A true professional knows how to use and care for his tools. We like to think of our fellow members as professionals when it comes using these airplanes and sharing in their ownership.

## 2. PREOCCUPATION, "RUSHING" and LACK OF ATTENTION TO DETAIL

In flying, unlike most activities, it's possible to lose the whole show through some seemingly-minor inattention. Mental concentration on details is called for -- without loss of a sense of proportion, or a grasp of the whole.

Flying will never be simple and guaranteed-safe. It's much like working around high voltage or handling explosives, both OK if you know what you're doing and take the necessary precautions, but unforgiving, with terrible consequences if you don't. Part of flying is also an exercise in machine management, like taking pictures with a big view-camera where there are six things to remember before you trip the shutter. Forgetting to cock the shutter on a camera isn't all that much of a disaster; forgetting to set the compass on an ADF approach might be.

Most of the lapses of concentration that we see, the ones that leave us gasping (or leave the aircraft unbuttoned or bent), are generally the work of "rushers". These are often people in whom we've already spotted a certain lack of deliberation in what they do (which has nothing to do with how rapidly or slowly they actually move).

The appearance of a rusher in our midst is cause for great concern. Somehow he or she must be reached, "slowed-down," and made to think, ahead of time, before luck runs out and we have an accident to contend with.

Rushers come in several varieties. They seem to be produced when certain personal characteristics (which may be invaluable for success in something else) are unthinkingly allowed to carry over into flying. Flying has its own peculiar requirements, which demand a shift of mental gears for some people.

### a. The Bright, Active Rusher

The most common type of rusher is the bright, active person, busily engaged in running a complex academic, business, or professional career, who after learning to fly, finds the airplane to be a useful tool among the many he or she uses to get things done. (Nothing the matter with this so far: in fact, that's the way it's supposed to be, isn't it?) Trouble is, the typical busy person's style can be just all wrong for flying. In his or her day-to-day existence, a thousand things clamor for attention. The phone rings constantly. The

interruptions are interrupted by interruptions. To get things done in such a setting requires a mind able to rapidly scoop a few important details and race ahead, delegating or ignoring the welter of little things that would otherwise bog everything down.

When such a person comes out to fly, he's apt to break away from the phone, put off a dozen people with claims on his time, charge out to the airport, and jump into the airplane while still thinking of something else. If he doesn't deliberately shift gears and revise his mental state, he's apt to have problems. His problems are worse if he's merely using the airplane to expedite whatever has claimed his attention already, and worse still if he's accustomed to having his way cleared by assistants or secretaries. (It's frustrating to find there's no staff of people out there on the ramp!)

Often, we find these rushers simply going through the motions. At preflight, being responsible and competent, they go through it all, but being impatient, with their minds on things far ahead, they look but do not see -- that part of the engine was still in the shop, for example (which is why the rest of it won't start). Enroute, they find they left their charts back in the baggage compartment, or in the car. Or maybe they neglect to check identifiers, and wind up weaving crazy down L.I. on autopilot while some technician with a screwdriver tunes up the LGA VOR. The same thing happens at shutdown: rushers are apt to leave doors unlocked and ropes untied. One of them even forgot to check in with U.S. Customs (a memorable occasion for all concerned!)

Obviously, a hurried, preoccupied pilot is menace to himself and his passengers. The greatly admired ability to leave details to others, ignore distractions, get to the point, and make rough and ready decisions can have negative survival value in flying, where trouble is apt to start slowly and subtly, and where close observation and reflection are needed before making a considered move, and where the instinct to charge ahead and do something, anything, immediately, can be wrong. Rapid and positive action is sometimes called for, but as Wolfgang Langeweische pointed out many years ago, in most flying, hardly anything needs to be done hastily, no matter what's going on, if you've done a good job of observation, have thought ahead, and have made your moves to keep the options open.

Fortunately, the smart, active type of rusher seems able to shift gears and pay deliberate attention to his or her flying once this need for this form of mental concentration is pointed out.

#### b. The Trimmers

Not so sanguine are the prospects for another kind of rusher, the "trimmers", people superficially like the above, but whose frantic activity is generally directed to digging themselves out of various deep holes, usually of their own making. Trimmers always seem caught up in preposterous, overly-elaborate plans, which absolutely have to work to stave off disaster. Or, they push for things that the rest of us find incredibly presumptuous, once we trace the circumstances and the reasoning. On Wednesday we learn that the brand new member wants to take the 210 on long trip Saturday. We find he's counting on getting checked out Thursday and on passing his IFR flight test Friday. The

destination? Bermuda, with 6 aboard (for which he hadn't bothered yet to work out the weight and balance, or look into the requirements for overwater flight!) Now, there's nothing explicit in the rules that says you can't attempt an ambitious operation right off the bat, but this whole scheme (like some of his others) was just insane.

Trimmers tangle the rest of us up with their impossible plans that never seem to work out. They play games with the scheduling rules or the buy-in arrangements. They push everything... people, time, money, rules, equipment...to the limit. The world may need such people, but for obvious reasons, API doesn't.

### 3. TWO MORE SPECIMENS FROM THE ZOO

#### a. The Quick Studies

Especially worrisome are a third variety of rushers, the people who seem to be too intellectually facile to fly safely. This is a hard thing to say, but brains can get in the way. This sometimes happens to people favored with agile, prehensile minds who are accustomed to mastering subjects far more recondite than flying, who whip quickly through the books, pass the exams with ease, and prove apt pupils in the air. Sharp, and able to think and act rapidly, they can get in and fire up in a trice, with the apparent ease of a 40,000 hour veteran. Yet, without an animal-like instinct for self preservation, and a certain dogged "stupidity" in paying attention to detail, they're not safe. Even if they don't have a screw loose somewhere, they tend to overintellectualize things that ought to be taken to heart and learned viscerally.

If they're tainted with arrogance, pedantry, or sophistry (the besetting sins of the intellectually-adept) they can often do terrible things to themselves and their airplanes, all in the name of reason, of course. Faced with a thunderstorm, or low fuel, they tend to argue with the inarguable, or just as bad, put too much faith in what the book says, or what the computer says, without allowance for all the "yes, but's" of real-world complexity.

Occasionally, confident that they know all about it, they show little patience for the dumb, simple-minded checking routines that help make flying safe. (Around the electrical laboratory, they're the types who don't use the ground-stick, and get zapped when a "sneak-circuit" catches up with them.)

Flying is a complex undertaking, not all of which can be reduced to computer routines or orderly chapters in a book. Never forget that you are disporting yourself in an alien, unforgiving environment, in a contraption made by engineers! Even if the designers were all geniusses, working under perfect conditions, aircraft would still be full of closely-figured tradeoffs, and the assumption would still be that their pilots would keep an eye on all the critical things, make up for the deficiencies of man and machine, and not allow the machine to destroy itself.

The pilot's responsibility is a demanding, solitary, personal one, calling for the use of all his senses and faculties. Trouble always creeps up insidiously: the ammeter moves over one needle-width and you begin to smell sulfuric acid (and you're not over New Jersey). A wisp of cloud appears where it shouldn't be. You hear ATC talking and realize there's been a mistake, someone is cleared same as you are, and might even now be closing on you at your altitude! Or maybe you just realize that you're getting overstressed and fatigued. The important thing is to remain wary and observant, and to do something, ahead of time, before things begin to snowball. Heed the subtle signs that something isn't smart or isn't working out, and don't let your head prevail foolishly over the more reliable self-preservation instincts in the seat of your pants.

Therefore, no matter how easily it has all come to you, or how well you grasp what's supposed to happen, assume a plodding virtue if you have it not! Look at everything; make sure your equipment is together. Don't be lulled by ritual: really see what you're looking at. It's a shock to find the thing you've checked 500 times before, sitting there this time defective or loose -- a letter bomb with your name and address on it! Always check! Someone may have backed the fuel truck into it when you were in having coffee. Or, the engineer who designed it may have only got C+ in school. You too can err: have a last look at the fuel valve, the prop, the mixture, as you roll into position. Listen to the mill, smell things, scan the needles. Cross-check everything as you set up an approach. When an error is discovered (and it's a rare flight when you couldn't have done something better) take it to heart: another time or different circumstances, and it could have been all she wrote.

Of course it takes intelligence to fly. Just be stupid enough to check everything, "whether it needs it or not" and like a crow (an unusually smart bird), be suspicious and observant! Keep your options open and never, never get caught in a spot where it all just has to work like it's supposed to.

#### b. Fearless Babes in Airplane-Land

In recent years, ever-increasing numbers of people have become interested in flying, have received training, and have taken to flying modern equipment in present-day airspace, where everything works just as it's supposed to. This is not an altogether unmixed blessing, for many times we see that these people, though well-trained, are dependent upon their sophisticated and reliable equipment, the ATC system, and being told what to do, to a much greater degree than their predecessors were in cruder, less sophisticated days. Unfortunately, the nature of flying is such that every now and then something happens which suddenly leaves one of them out there, all on his own. The results have not been good. A rising national accident rate shows that something is missing. Things we've seen in our own operation have given us cause to worry.

The problem is made worse by still another kind of rushing which we often see in very able people. Pilots, by and large, are achievement-oriented types accustomed to excelling in all that they do. To their flying they bring an impatient, striving mentality,, in itself not a bad thing, but one which

sometimes takes the form of a merit badge approach to acquiring ratings, an excessive and premature interest in fancy equipment, or a presumptuous haste to attempt operations for which the real qualifications may be far removed from the nominal ones, particularly if something goes sour.

Sometimes their problem is just the familiar one of being hung up on status, or being gadget-happy. More generally, though, theirs is a problem of ignorance. No one has let them in on the real problems of flying "tough", where the navigation and management of a fancy machine is only a small part of the whole, and their actual achievement can be better reckoned as, say, the total wisdom shown during a trip in the 172 where a lot of things came tumbling out of the pipe.

In most activities, being over-schooled, gadget-happy, or rashly precocious is harmless enough. The world has always laughed at foolish polymaths whose advanced degrees aren't matched by an equivalent sagacity, Nikon-toting tourists snapping pictures of a total eclipse with their flash-guns, opera-singers floundering in well-known vocal traps, or downy-cheeked management experts who dropped out of an egg laid only yesterday. In flying, though, the equivalent types are positively dangerous.

We worry when the new person seems overly fascinated by navigation calculators, autopilots, digital busy-box radios, and DME's, all nice things, but quite unessential. We worry indeed when he says things like, "I always fly IFR because then you know where you are!" Oh, what a stupid admission! Oh, how wrong! No, no, no: IFR or VFR the airplane is flown inside your head. You want to be sure your head knows where the airplane is and where it's going: you must never abdicate anything so important to a controller, to a little black box, or to gadgetry that will fly you up and down the little blue lines on the map.

Again, many of us fly night, terrain, and IFR operations, or tackle megalopolitan airspace, but we worry when we see someone about to launch himself without thinking and proceed to fly those lines on the map, ignoring mountains, cities, water, boondocks, the hour of the day or the season of the year. Yes, everyone does it. Is it smart? It all depends. At least it deserves some thought.

Sometimes it becomes obvious that the pilot is so hung up on procedures and preconceived ideas that, like a paper-trained puppy who can't relieve himself in the woods, he can't take prompt and appropriate action when faced with something strange that really isn't going to work out for him. He gets in deeper and deeper, and loses sight of what's most important -- which is to first, last, and always, fly the airplane -- no matter where he is or what's broken loose all around him!

Ice, T-storms, darkness, turbulence, sick passengers, ATC, electrical failure, falling minimums, carb ice, fatigue (and panic) can all get together suddenly. Or maybe, with jets all around, he's just been bullied by ATC into keeping his speed up, and even now is cleared to land hell for leather into the wake of a departing jet. Can he handle it all? If he can't, will he keep the mill going

and fly the airplane first, before he does anything else? Will he rank his options intelligently? In the first kind of jam, it might be smarter to fly the ILS straight in for a downwind landing, at night, in a snowstorm, without minimums, than risk turning back in ice and turbulence, without fuel, and a real question of making it or not. Or in the second, before plowing into a kerosene-scented tornado, it might be smarter to break off the approach, pour on the coal, and get out of there, ignoring the howls of ATC and explaining later, if need be, from a nice solid telephone booth planted safely on the ground. Does the paper-trained fellow think of these things? Does he know what he's going to do if putting the flaps down on approach blows the entire electrical system and all he's got left is his compass and his watch?

Training and good equipment are a help, of course, but they can be counter-productive if they tempt people in over their heads, or leave them up the creek when something quits (which it definitely does, in any airplane, from time to time). Experience, of course is the great teacher, but even it can be a handicap, if it has been the wrong kind, or if the wrong lessons have been drawn.

We worry about the 2-week wonders, who have picked up their ratings through intensive instruction during a summer vacation, whose experience, though long enough in hours, doesn't begin to cover the usual problems. They may never have had to contend with 5 o'clock metro airspace, or decide about a line of thunderstorms in the Spring, patchy ground fog in the Fall, ice and turbulence in Winter. Worse, they know instrument flying like some of us once knew French, just well enough to pass the exam, and then poof!

On the other hand, we worry especially about the person who in having survived some hairy experiences, has drawn the lesson that his flying is still further proof of his personal invincibility and prowess, perhaps to the point where he subconsciously fancies himself in the same league as the Indian rajah in the famous set of paintings, depicted as able to indulge himself with his concubine while variously leading his army, riding an elephant, shooting a tiger, etc.

The bright plumage of an assumed personal invincibility is no help at all in a situation in which all your feathers fall out. In the middle of a deepening emergency, procedures and fancy equipment can be a fatal distraction. Merit badges and cellophane-wrapped experience won't help either.

To hell with them all! Fly the airplane. Take account of the things that can go wrong with even the simplest flight, and be sure you can at least fly the airplane, no matter what, when suddenly you're a cat with a lot of rat-holes to watch in beautiful downtown Hamlin!

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With this much understood and out of the way, by all means get the training. learn how to use the fancy equipment, and go ahead with operations you're truly qualified for. Remember, though, that the mark of a true professional -- in anything -- is the ability to get superior results in adverse circumstances, consistently, whether he feels much like it or not! Take care to fly professionally at whatever your level of skill, and be able to produce those

superior results should you ever have to.

Most important, after a bad experience, you must think about what happened, a process that takes time. You can't be a safe pilot until the enormity of it all has sunk in. You've got to develop an appreciation for the way the long string of unbelievable coincidence can loop through scattered events and suddenly draw them all up tight into a "gotcha". Most especially, you have to see how your own makeup can combine with events to sucker you in, and come to the realization, if appropriate, the whatever's made you successful in something else can be irrelevant or downright dangerous in your flying. And finally, you have to see if some unmistakable way that in flying, it's up to you, it's all for real, and it's for keeps. If such thoughts don't grab you at odd moments or in the middle of the night following the discovery of an error, you'd better not fly, no matter how skillful you are!

Therefore, don't rush things. Take time to acquire experience in manageable pieces, and reflect sufficiently to transform them into part of your permanent, non-volatile competence. Use imagination and judgment: don't go wet into Westchester County at 5 pm if all your experience has been fair-weather jaunts under the hood up to Concord. Don't take your family on a 7000-mile vacation trip if the all you've done together is local trips to Provincetown or the Vineyard. Work up to these things, see what you get into, and think about what you've learned. Think about the accomplishments of our aeronautical ancestors, who got along with terrible equipment. Then, when you finally do have your ratings and access to fancy equipment, you will be worthy of it, and safe because you know how the music goes, not just how to play the piano!

#### 4. CURRENCY

We have good reason to believe that maintaining currency, or regaining it when lost, is a subtle business not really taken care of by time rules or check-rides. Both studies (some of them by API members in their occupational capacities) and our own operating history directly bear this out.

API, by its very nature, attracts people who may not fly enough to stay truly current. Dividing total hours flown by number of members always produces a low number, on the order of 40 hours per year, with individual totals ranging from perhaps three times this number down to zero. Some people fly only seasonally, others take only isolated big trips. In no way can they really consider themselves current in the airlines sense of the term. As can be appreciated, there is a problem here, particularly if a member's hours and ratings qualify him to use complex equipment and undertake ambitious operations, and he uncritically accepts all this at face value.

One of the things that really counts in currency is not obtainable by rushing. As discussed above, it's that rock-solid, dependable, minimum competence needed to fly the airplane in a tight spot. It has to be there when the equipment packs up; it has to be there in all those things that have nothing whatever to do with the equipment.

Slow to develop, it's this fundamental competence that the professional pilot eventually develops to a high degree, (This is the point of the mickey-mouse rules about hours and ratings: it does take time to develop. Unable to legislate or test for it in any objective way, the rule-makers and insurance people can only set aside time for it to develop and then hope for the best).

Atop this basic competence is built one's immediate currency, a product of practice and instruction, and also quite necessary for safety. It, of course, is hard to keep up because it is so volatile.

Actually, keeping up with the machine-management parts of flying isn't too hard. Finding the switches again, picking up the procedures, remembering speeds and settings -- it all comes back again with a little study and practice. The more hours you have, the easier it is to regain these things after a lay-off. It's important to recognize, however, that even though you have thousands of hours, advanced ratings, and have met the currency requirements, or can pass a check ride, you may still not be current in the sense of having a dependable judgement.

During a lay-off, what's really evaporated without your knowing it is your sense of continuity: how well you flew yesterday, last Tuesday, the week before that; and with it, your reliable estimate of just how complicated an operation it's smart for you to undertake. Overcoming rustiness isn't just a matter of remembering boost pump and cowl flaps: you have to re-establish for yourself a good idea of how well you're going to deal with perturbations, surprises, or sudden overloads.

As experience has shown, minimum legal currency or a satisfactory checkout alone isn't good enough to paper over the gaps left by low activity: you've got to be practiced and fully current to hack flying to scheduled business appointments, to major air-carrier terminals, or to "twilight-zones" famous for rotten visibility, harum-scarum traffic, or built-in operational problems (coastal Maine, Westchester Co., Meigs, etc.) Take our currency requirements (and those of the FAA) as minimums; take the successful passing of a check ride with a grain of salt. Don't fly "tough" unless you fly a lot. After a layoff or a period of low activity, at the same time you regain your certifiable currency and apparent high competence, be sure that back of this there's a dependable minimum capability that will stay with you even on an off-day, something calibrated, known, and at least adequate should you find yourself in a jam.

We encourage you to fly regularly, to keep the volatile stuff fresh in your mind, and to build your basic competence. This is the way to stay safe. Do it regularly, as Henry says, for the same reasons you brush your teeth.

Practice! Stay safe! It's your airplane -- and ours. What's more, it's your hide!