

NOTAP -- Associated Pilots, Inc.

SOME OBSERVATIONS ON LANDING AND GROUND-HANDLING DAMAGE

Within the last couple of years, we've bought 2 new props for the Mooney, and have had to fix a splayed nosewheel and a dinked wing on the Cessna, thus continuing what was already recognizable as a history of minor landing and ground-handling accidents over the years. By one accounting (made some time ago) the damage rate has steadily kept our costs a couple of dollars an hour more than they ought to be. There are other adverse effects on the club. Something is lacking in our collective understanding of how to head off trouble when the airplane is landing or trundling along on the ground.

As Operations Manager, I actually see no signs other than an occasional side-scalloped tire that API pilots don't know how to land properly. I see no signs of the sort of carelessness or foolishness that says we have yo-yos in our midst.

If what's known about the various incidents is laid out cold, any one of us looking the information over would say (just as one says when reading about other people's prangs in the flying mags) "Oh well! None of us would ever do that!," or "That wouldn't happen to me!" And (sitting there in your armchair under ideal conditions) you're probably right. The problems come about when somebody actually out there in the real world slips and gets behind the airplane.

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Some would say that it's lack of currency, a problem in an outfit like ours, but the accidents have occurred to the "heavies" as well as to the "sporadics" in our midst. Obviously, training, experience, and currency all have a lot to do with how well you're going to handle a sudden crisis. Practice gained in currency flying is only part of the story, though. Actually, nobody forgets how to land, any more than he or she would forget how to ride a bicycle. The major benefit from currency, I believe, is the continuing update and calibration of your own good judgement, so that you know how "tough" it is smart for you to fly. Being thoroughly current helps, but it is no guarantee that you will actually show good judgement when confronted suddenly with a surprise.

To a much greater extent than is generally realized, the outcome of any event or incident depends on your mental condition at the particular time, i.e., on how sharp you are at that particular moment, how good your judgement is, which may have little or nothing to do with your currency as it is commonly reckoned. Mental condition is tricky to assess, for it changes from day to day, or even hour to hour, particularly during a trip!

Consider, for example: student pilots can land an airplane perfectly well, time after time, without ever damaging the airplane, as long as they stay within the limits of their as-yet imperfectly-formed capabilities, a judgement which their instructor (and their own fear and common sense) helps them with. But, from your own student days, you will doubtless remember times when your instructor, sensing that you'd had enough of one thing and were getting punchy, would break it off to do something else, or suggest going back to the airport. What he sensed was not deterioration of skill, but of mental condition, of judgement! (I can prove to you that even a first-time passenger can land an airplane safely

-- almost without touching the controls, even -- if someone knowledgeable sits there and supplies the required judgement. It's simple! You have them slow-fly down to the runway at a modest rate of descent, and just let it hit. It will land itself perfectly! The skill needed is just minimal!)

The training we've had from Harold and others is, I think, quite adequate for the normal flying skill problems we are apt to face. And, as the studies show, even people with very little training can make good judgements and fly quite safely! (It's at about 300-400 hours that they get overconfident and their general judgement goes to hell, but that's something different.)

I think that what gets ordinary, responsible, sane people like ourselves into trouble is actual moment-to-moment mental condition, which can deteriorate rather badly during a trip, often without your realizing it.

Consider the following list:

- + Deadlines to meet, appointments to make, urge to get home
- + Failed arrangements with scheduling, with passengers
- + Trouble in starting
- + Physical fatigue
- + Instrument failure or misinterpretation.
- + Discovery that you've been flying with flaps down or boost pump on
- + Getting slightly (or badly) lost.
- + Smell of something burning up in the hydraulic or electrical system
- + Suspected weak battery
- + Hunger, thirst
- + Boring into a headwind (with the hot sun boring into your lap)
- + Sticky upholstery, and creeping Airplane Smell
- + Rotten air, sick or complaining passengers
- + Two hours or so of steady roar and vibration
- + Freezing feet
- + Falling minimums, T-Storms, frontal activity reported at destination
- + Ice and turbulence
- + A full bladder
- + Electrical system acting up.
- + Engine a little rough
- + Low fuel
- + Mumbled ATIS announcements (with an ear-blasting "BEEP!")
- + Incomprehensible ATC instructions
- + Entering the pattern wrong
- + Jet traffic behind you
- + Crosswinds, blowing snow, sun in your eyes.
- + Glare ice on the runway; snowbanks on either side.
- + Faulty gear indication

Sound like some trip when it all happened to you? Do you feel the adrenalin rising already?

If several of these conditions popped up all at once, you might act quickly and correctly for 10 minutes or so. But suppose you have to sit there for another hour as you grind on toward your destination, while a long string of these things keeps tumbling out of the pipe! As you deal with the new ones, the adrenalin and other juices from the first ones are still sloshing around inside you! Do you think that you will still be sharp and thinking straight when it

comes time to put it down somewhere and taxi in? Quick, man, what is your estimate for the next fix? After a trip where one thing after another went wrong, I've seen a grown person, an experienced pilot, in adding up route segments, reduced to writing 2 on his clipboard, then another 2 below it, then drawing a line underneath, then thinking hard before coming up with the answer! What sort of decisions is a fellow in this condition apt to make in landing if some real surprises pop up?

Every distraction, before or during a flight, every little thing that goes wrong or unexpectedly astray, is a stress-raiser that ultimately saps your ability to react properly. At first the little glitches make you sit up and take notice, and this is all to the good. After you have accumulated a number of them, however, and have been confined in the airplane for a period of time, WATCH OUT!

When the trip falls out this way, you should assume that your flying has been impaired, whether you feel it has or not. You need to take extra care to review your situation, your check lists, your approach plate, and to consider carefully what you are about to do with that airplane you've got strapped to your bottom.

If you suspect or know that you're not sharp, you must approach a critical operation in a very dogged and "stupid" manner, recycling your head if you find that your attention span isn't what it ought to be or that you're making dumb errors. Your problem has escalated -- is not just operating the machine like you've been taught any more. Now, you've got an emergency! Now, you have to save your hide! Whatever your level of skill, now you have to call it all up, and use it coolly and professionally.

Plunging on may not be the professional thing to do, at all! (Remember: the professional is the guy who can do the right thing whether he feels like it or not, who can always get superior results under adverse circumstances. Sometimes the "right thing" is to quit, and the "superior result" is simply to survive!)

You may need to literally or figuratively pull over to the side and get sorted out, and not push on. Land right away at some place where it's simple, if you can, and walk around to burn off the adrenalin, look at the scenery, have a cup of coffee, take a nap. The old college try is inappropriate: you're not flying diphtheria antitoxin to Nome. Professionals know when to throw up a case!

If you can't land, assume that you are dangerously punchy, and then deliberately do some things to compensate:

- + Don't blunder on, ignoring little signs that whatever it is you're doing isn't smart, isn't going to work out. Never get in so deep that it just all has to work! Always have an out!
- + Do everything possible to make it easy for yourself
- + Check things, making absolutely sure of the essentials
- + Psych yourself up for a maximum effort to stay ahead of the airplane
- + Be mentally set for a missed approach, and if things get too complex for whatever reason, break it off, go around or take the missed, and try it again with everything solid, peaceful, simple, and checked.

Certainly, this is not a recommendation to continue flying under known impairment -- far better to put the key in your pocket, find a place to sleep, and forget about flying for a while -- but once in the air, and you have had things happen to you, it may be absolutely crucial to be able to keep it all together, to keep on playing the piano, especially when it comes to approach and landing, the "stretto" in the Bach fugue you've been plinking away at for the last hour or so. Continue to push for something you can't really hack in your present condition and you're well on your way to wrapping it up.

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Curious, but many of us within the Club can see trouble coming a long way off. Tip offs are overintellectualization of things which have to be learned in your guts and bones, or "rushing," a common failing of people who are extremely competent at something other than flying. These people frequently fail to shift gears to match the peculiar demands of flying, or fail to realize just how wrong even a brief ferry flight can go! We worry when we spot one of these.

On a shorter time-scale, when out flying, you can spot the guy who is going to louse up. A fellow wrecked his Tri-Pacer one day right in front of me, and I knew several minutes ahead of time that he was going to. The "skywatch" people who observe road traffic say they can pick out the car which is about to have an accident down below on the highway! Nothing occult about this! What you often notice is a tendency -- unjustified --

to ignore, dismiss, or ram right through conditions that would ordinarily call for checking, for reviewing options, or for showing a certain amount of wariness. (Sometimes this tendency is covered up by apparent hesitation and super-cautiousness, itself a bad sign -- or by a thin veneer of slick and facile skill, highly suspicious when it turns out to have holes in peculiarly important places.)

Even though none of us are the drunks or pathological cases who routinely show these signs, we can, when fatigued or overloaded, show them to some degree. Too bad there isn't a way to determine your own condition, something on the order of pinching yourself hard to see if you are drunk. Perhaps spouses or frequent passengers can tell by various subtle signs, like speed of answering "How many fingers am I holding up?" I don't know.

One test which warns of serious mental deterioration while night-flying is to note any increase in the Pulfrich phenomenon (a famous optical illusion due to retinal fatigue) which shows up in flying as a slight disconnection between motion of brightly lit dial figures with respect to dark instrument holes, as your eyes scan the panel, or as you bounce around in turbulence. Another sign of deterioration is lack of short term memory for freqs or other details looked up a few moments ago on the chart, or excessive stupidity when doing simple mental arithmetic. Finally, if there is any tendency to shut down peripheral awareness and watch only a few instruments, to think yonder thunderstorms are only pretty and not to think ahead and review options, you've definitely in trouble.

Being super-cautious doesn't help...you may only make the situation worse! Avoid overloading your precarious attention span with things that don't really matter. You must organize and simplify, and then make absolutely sure that the essentials are taken care of. Do this even if you have to talk to yourself emphatically, out loud in front of your passengers. Ignore any lifted eyebrows

-- what do they know about running a complicated, dangerous machine under tough conditions? You need the help of both your conscious attention and your ingrained habit patterns, and the full services of both halves of your brain. Talking out loud (and listening to what you say) is one way to catch potential error.

When you've noticed anything like this, the main thing is to realize you're punchy, and a danger to yourself and everyone around you. Make sure everything important gets checked, then get the trip terminated as soon and as safely as possible. The trick is to spike the wheels of any train of circumstances which at that very moment may be rolling you toward an accident.

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Once on the ground, remember that the flight isn't over until you've tied down and made it safely on foot through the terminal gates. There may be as many as 15 or so things to do at shutdown: recheck the most important ones. (Don't forget to clear Customs if that's required, as one former API member, punchy from a long flight from Canada, failed to do!) Finally, when alighting from the airplane, watch your step if it's icy. Nothing like climbing down from the aircraft that has brought you safely halfway across the continent--through storm and darkness, across the hideous mountains and gloomy forests, to a successful landing on a frozen New England wastes -- and then fall down and break your head. I've done it, and so have many others!

Summary

It's hard to say exactly what went wrong in either of API's recent prop damage incidents, but in both cases jet traffic -- and real or imagined pressure from ATC -- was a factor. What happened to the 172 in the past is even more obscure. It is clear, though, that in all our recent wrecks, trouble started somewhere ahead of the actual landing, most likely as the result of stress. Simple mechanical trouble or lack of knowledge about how to land is not enough to explain what happened.

Therefore, be advised: fly in such a way as to minimize the chances of surprise or upset, ignore schedule or deadline pressures, avoid physiological discomfort, avoid fatigue! If you suspect that your kidneys have been stewing too long in adrenalin-sauce, or that your brain has turned to spaghetti, be aware that you have an emergency of sorts. Be sure to get things simplified and under control, and doggedly check the important stuff in relative peace and quiet, before committing to a landing. Push on without doing this, and it's awfully easy to wrap it up or bend something, as we have seen.

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