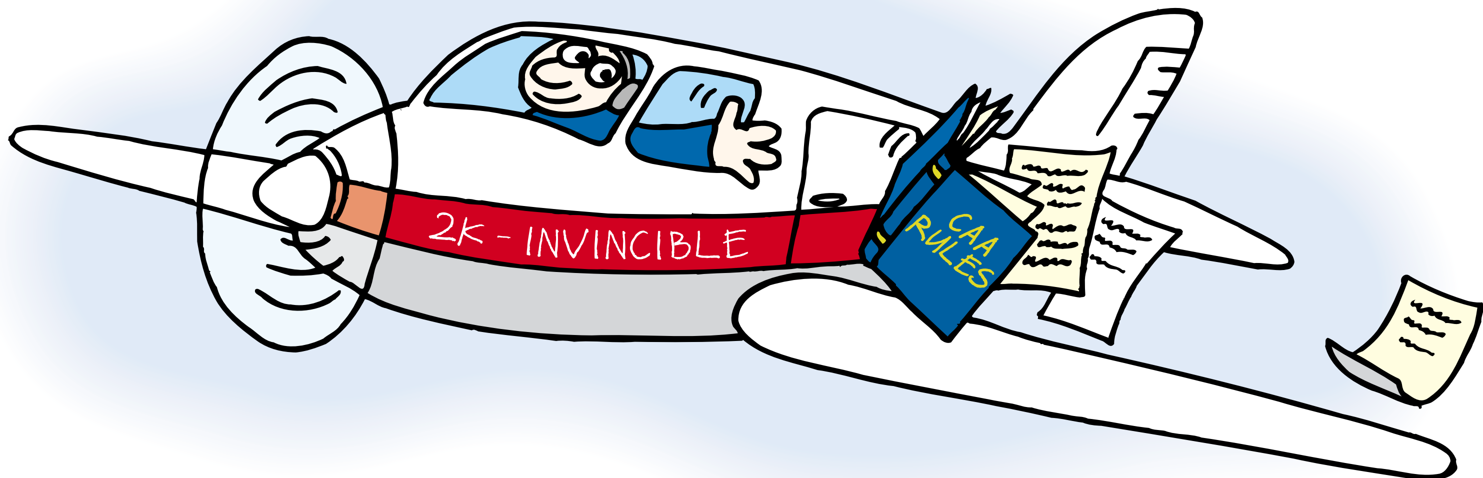
Pilots Behaving Badly

Intentional rule-breaking, wilful non-compliance, even recklessness – strong words. What we are talking about is when pilots know the rules and do not follow them – deliberately.



This article comes from the September 1997 issue of Flight Safety Australia and was written by Dave Huntzinger. Dave is a Senior Safety Executive with a major US airline and was formerly Senior Principal Scientist – Safety, for Boeing's aeroplane safety group. There have been fatal accidents in New Zealand directly attributable to pilots knowingly breaking the rules, and there will have been many more lucky escapes. Several accompanying examples, from New Zealand and overseas, illustrate the dangers.

We don't talk about rule-breaking too much in aviation because of the dire consequences of getting caught. If the regulatory agency finds out about it you can lose your licence. And if all this happens on the job, your employer will probably fire you.

This doesn't mean that your company won't benefit from your action. In fact, they may condone a rule-breaking episode, or worse yet, demand that you break the rules.

Commercial jet transport statistics are a good point of departure for studying the effect on wilful non-compliance in aviation. Boeing recently conducted a study of 232 jet transport accidents to identify specific pilot actions that would have prevented those accidents. The leading pilot-related prevention action would have been "adherence to procedures" by either one, or both, of the pilots. This was a factor in 65 percent of those accidents.

"If a person breaks a rule to save time or money, then the protection provided by the rules is lost."

If adherence to the procedures would have prevented the accident, then why did the pilots not follow them? There are only a few possible answers to that question. Ignorance of, or failure to remember the procedures, are possible choices. Pilots, however, especially commercial and air transport types, are required to demonstrate their knowledge of aviation regulations and published procedures on a regular basis.

In addition, many aircraft-related procedures are written down in the form of checklists or a quick reference handbook and carried in the aircraft so they can be referred to when necessary. Multiple non-normal events and confounding situational clues are other possible reasons. Bona fide emergencies or just plain bad rules are another.

Overseas – "Am I Gonna Run into Something?"

A newly licensed private pilot, aged 53 with 110 hours, and his wife were planning a cross-country flight. They were to be met at the destination airport by his wife's sister. From there they were to attend a dinner function.

A pre-departure check of the weather indicated no known problems. A little over half way there the pilot encountered rain and lowering ceilings. He descended to remain clear of the clouds. The ceilings continued to drop and it began to rain harder. To avoid contact with the ground, the pilot was flying at the base of the overcast.

He was too low to receive the VOR so he was following the highway. Unsure of his exact location he knew he was close to a major airport situated near his destination. He contacted the major airport on the radio and they gave him radar vectors to a landmark near his destination.

Unfortunately, the vectors took him through heavy rain and clouds. He found the destination airport and landed uneventfully.

The pilot termed his actions "gotta-get-there-itis". He felt he was committed to keeping a number of appointments and could see no way to cancel or alter them once airborne. He went on to say, in this context, that "it's hard to turn around once you're going".

As for risk, the pilot thought "cripes, am I gonna run into something, a hill, a tall radio tower, another aircraft? Those are the fears. Of course, the ultimate fear is that I'm gonna be a little spot on the side of a hill someplace." When asked if he thought he might get caught violating the rules he replied, "I don't think that was a concern at the time."

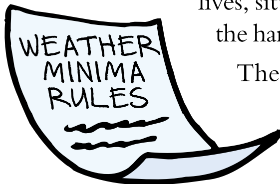
Intentional violation of rules and procedures is another possibility. There are few studies that focus on intentional rule-breaking among pilots. One of them comes from the Interstate Aviation Committee, the aircraft accident investigating authority of the former Soviet Union.

Their study indicates that many of their accidents are "due to conscious violations of rules and procedures by flight crews and ground-based personnel". The study revealed that 28 of the 33 accidents involving heavy aircraft resulted from violations of rules and procedures.

Other data show that rule-breaking episodes have undesirable outcomes. A US Airplane Owners and Pilots Association (AOPA) study indicates that 44 percent of all fatalities in general aviation occur when pilots licensed for flight in Visual Meteorological Conditions came upon, and then flew into, Instrument Meteorological Conditions. That 44 percent is the result of a group of pilots violating only one rule.

Why Break the Rules?

Why do people intentionally break the rules? The principal theories of deviancy try to explain why people defy society's norms, values and laws. Most of these theories examine the lives, situations and motivations of the hard-core, long-term criminal.



There is one theory, however, called situational control theory, which describes some rule-breaking behaviour as "episodic, purposive and confined to certain situations". The motives for such behaviour are frequently episodic, oriented to short-term ends and confined to certain situations.

Situational control theory has three basic parts. An adequate reward is the first condition that needs to be satisfied. The second is that there must be a high probability of success. That is, you will get away with the act. The third is that there can be no adverse reaction from peers. All of these conditions must be present in order for the rule-breaking episode to occur. If any one condition is not present, or in doubt, the individual will not break the rule.

New Zealand – Unauthorised Flight

The novice pilot was on a local flight in the microlight with his friend on board and was seen circling over a relative's house. The aircraft then made a low, slow, steep turn over an adjacent property. During the turn, the aircraft entered a vertical dive from which it did not recover. The pilot's instructor had not been made aware of his intentions to fly that day and was therefore unable to authorise and supervise the flight as required by the procedures of the Recreational Aircraft Association of New Zealand. The pilot was not certified to act as pilot-in-command of an aircraft carrying passengers. The pilot flew well below the minimum height permitted by the Civil Aviation Rules.

The most likely cause of the accident was poor handling of the aircraft by the pilot while attempting a manoeuvre at low level, which was beyond the capabilities of the pilot and his aircraft.

New Zealand – Needless Low Flying

The Cessna 152 departed the aerodrome for a private flight to the north. On board were the pilot and his friend.

Attention was drawn to the aircraft a short time later when it was seen in a persistent bout of low flying, which focused on the passenger's residence. As the aircraft passed over the passenger's house for the last time, a witness believed that she saw it hit a tall tree. Following this low-level pass, the aircraft continued flying for about one nautical mile to the southeast.

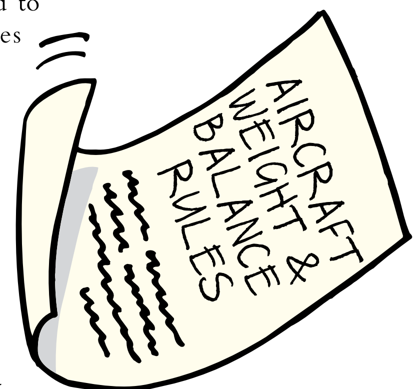
Immediately prior to the accident the aircraft was seen to pitch up as if to clear a shelterbelt. At the top of the resultant climb the engine noise reduced and the aircraft's nose dropped. (The aircraft was reported as following a pattern of low flying over the area of orchards where the accident occurred. This pattern involved a pull-up over each shelterbelt, a reduction in engine noise as the aircraft neared the top of the climb, a dive into the sheltered area, and then climbing away over the next shelterbelt.)

The aircraft then went out of sight and the sound of an impact was heard. The aircraft collided with the ground in a 60-degree left bank at an angle of descent of around 45 degrees. The impact was not survivable.

"Many accidents are due to conscious violations of the rules and procedures by flight crews..."

Pilot Experiences

In 1994 I conducted a research project that examined pilots' experiences. I interviewed 30 pilots: ten private pilots, ten commercial pilots, and ten air transport pilots. They were asked to relate two stories about themselves, one where they intentionally broke a rule (rule-breaking episode) and one where they thought about it but did not ("rule-breaks considered" episode). In both cases they were asked specifically about the motivation for breaking the rule and their perceptions of the risk associated with that decision. The pilots were also queried about adverse reaction from peers.



The motivations were tallied for both the rule-breaking episodes and the "rule-breaks-considered" categories. There were 90 motivations provided.

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Economic concerns (69 out of 90; ie, 77 percent) were the dominant motivating factor. Pilots were willing to break the rules to save time or money for themselves, the company or the customer. The remainder (21 of 90) were attributed to pride, duty or gaining experience.

The perceptions of risk were different between the rule-breaking episodes and the "rule-breaks considered" events. In the rule-breaking situations about half had no concerns about the risk. The remainder felt there was a high probability of success, although 13 thought there was a slight chance of being killed or caught. Six were afraid they might damage the aircraft or that the aircraft's performance would be inadequate for the task.

The distribution of responses changes dramatically in the "rule-break considered" category. The majority of the pilots (24 of 30) were afraid of being killed if they followed the proposed course of action. Seven were afraid of getting caught and three were afraid of damaging the aircraft (the total is greater than 30 because several pilots had more than one concern).

It is interesting to note that none of the pilots was free of concerns when deciding to break the rules; they were clearly worried.

The last category has to do with adverse reaction from peers. A peer in this case is another pilot, a knowledgeable passenger, an observer or even a company official. There was no adverse reaction from peers in any of the 60. This is especially noteworthy for the two groups of professional pilots. In 31 of 40 cases, they were flying with other qualified pilots.

A fairly clear pattern emerges from this study. Within the aviation system there are a wide variety of economic temptations to break the rules. Company management is pushing schedule and cost. Passengers demand to be on time. The pilot and other crewmembers have personal desires and timetables as well. This is the motivation.

The pilots then use whatever information they have about the situation to estimate the probability of success of this action. The estimate will contain some assessment of their ability, the outside environment, and the capability of the aircraft. If the outcome looks positive and they are not challenged, or worse, they are encouraged to proceed, then they will break the rules.

Unfortunately, people are not good at estimating probabilities of possible outcomes. One reason is that people are susceptible to all sorts of biases. These include overconfidence, hindsight, inadequate information and more. Information availability is a special problem in the dynamic world of flying or line maintenance, because people seldom have all the information necessary to make a totally informed decision. As a result, we tend to do what we think will get the job done.

Overseas – Hopelessly Committed

This pilot, aged 48 and with 29 years experience (4100 hours) was flying a charter flight in a VFR-equipped, single-engine float plane. On this particular day the pilot was flying over the water between two parallel shorelines. As he proceeded along this channel, the overcast began to lower so he descended until he was within 50 feet of the water.

He kept thinking that if there was any problem he would reverse course and fly out the way he came in. Shortly afterwards he came upon the bridge that crossed from one shore to the other. He could see the bottom of a bridge but not the top as it was obscured by clouds. A quick glance showed there was no room to turn around. The pilot said he was "hopelessly committed at that point", so he pulled up and into the overcast. He allowed some time to clear the bridge and let down on the other side. He landed after that and refuelled the aeroplane.

Two factors played a role in the motivation to continue. One was the desire to get the passengers and the cargo to their destinations. "I figured that there was a certain urgency about this particular group of people and cargo getting to where it was going so there was a little bit of pressure there." The pilot also said there was "a pride in being able to deliver the mail, so to speak." He tried very hard to "be the one to get through, to get the job done."

The pilot felt the real danger was in trying to turn around inside the narrow passage. He felt he had "no other option" but to go over the bridge. "Actually, I knew that I had pushed real hard that time and been lucky. That's probably not a good way to live a long and prosperous life in flying."

Prevention

This look at intentional rule-breaking is intended to provide a framework for prevention. Armed with this type of data, certain corrective measures become apparent. One of the first is to admit that intentional rule-breaking occurs at all levels of the system.

At the individual level the prescription for change lies in the different components of situational control theory. One course of action is to educate people about the effects of motivation on the decision-making process. The rules, in general, provide a minimum, if not an optimum, level of safety. So if a person breaks a rule to save time or money, then the protection afforded by the rules is lost.

The second element has to do with perceptions of risk – getting caught or being killed. It is clear that the threat of increased surveillance or even punishment is not the answer. With the motivation in place, a potential offender will simply wait for an opportunity that is not monitored.

Awareness is the better path. The more you realise that rule-breaking puts you at tremendous risk, the less likely you will be to attempt it. One course of action, for example, would be to let pilots attempt landings, in simulators after breaking out at 50 feet and off centreline. Having done this myself I can assure you that it changes your perception of your probability of success and the consequences of such an action. The last has to do with adverse reaction from peers. Crew resource

management seems to be a natural fit. In this case the other crew members are encouraged, if not required, to point out that a certain course of action may not be in the best interest of the passengers, crew or company.

So far we have been discussing the individual and that person's role in a rule-breaking event. The aviation community determined long ago that there are a number of elements associated with a given event. Decisions like this are very rarely made in a vacuum. Consequently, if a pilot or a mechanic intentionally breaks a rule there is probably a reason why.

Sometimes these are prompted by the employer. (How many pilots have been told "be safe but don't be late?"). So, the same medicine must be administered to the aircraft operating companies. Their policies and actions must put safety above all economic concerns.

On occasion, working norms are at odds with the rules. This might be as simple as pulling a quarter turn on the spanner instead of using the torque wrench. If the norms are good then convert them to standards. If they are not, then corrective action, like training or better tool availability, may be in order. Incentives for safe behaviour are another consideration. Employees are rewarded for following procedures and appreciated for not succumbing to the ever-present economic strains. This takes a concerted effort on the part of management.

This dedication to safety can be realised in procedural terms. One example is a no-fault go-around policy or other policies that clearly demonstrate that safety is more important than cost and schedule. This same attitude must

New Zealand – Unauthorised Low-Level Aerobatics

The aeroplane was on a private flight in the vicinity of Kaitaia. In the last few seconds of the flight the aeroplane was seen in a vertical climb, which was followed by a manoeuvre resembling a stall turn to the right, and an almost vertical dive toward the ground. The height at which this manoeuvre occurred precluded recovery before the aeroplane struck the ground. The pilot, who was not rated to perform aerobatics below 3000 feet, was killed. The aircraft was destroyed by impact forces and fire.

The accident occurred in close proximity to where a builder was working. The builder was known to the pilot.

This accident highlights the dangers involved when low flying and performing low-level aerobatic manoeuvres without the requisite level of qualification or authorisation.

permeate the entire company. The goal is to have only one motivation – the safe conduct of the flight.

Aircraft rental companies can also modify their rental contracts. It is relatively common for a pilot to fly into deteriorating weather in an effort to get the aircraft back on time rather than pay for an extra day and wait for improving conditions. To remove that temptation some companies have included a clause that permits the pilot to keep the aircraft as long as necessary at no charge, if the weather is beyond the capability of either the aircraft or the pilot.

This might cost the company a few extra dollars on an occasion or two but it is far less expensive than losing an aircraft to an accident.

Regulatory authorities world-wide could also implement progressive measures to counter violations. For example, the investigating or regulatory authorities could move past the violation itself to make sure they understand why the person broke the rule. The lessons could be imparted during initial or recurrent training sessions or in a variety of publications.

There may also be some value in re-considering what constitutes 'just punishment'. For instance, rather than revoke the licence of a mechanic or pilot for wilful non-compliance, it might be better to require that they go on the lecture circuit at industry meetings or training schools. That way the value of the experience is not lost, the industry does not lose an otherwise valued

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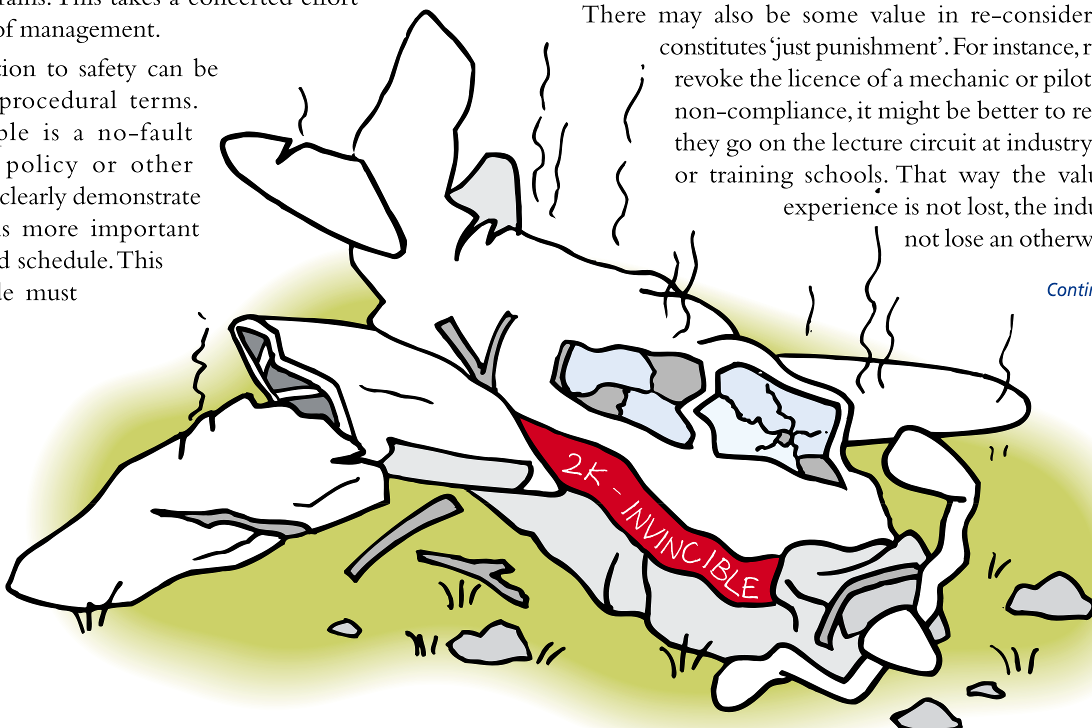

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worker, and the individual retains his or her job. What do we want from the aviation system? Is it retribution or system improvement?

Professional Approach

People in the aviation system must recognise that there are temptations to disregard the rules. These may be generated at the personal level or come from external sources such as an employer.

A mature, professional approach is needed to counteract the temptations. The fact that you can't know or predict everything about a given situation should temper any assessment of the risks involved. Abandoning the protection the rules afford can be catastrophic. Remember also that the rules are the minimum acceptable standard.

Organisations can also help prevent rule-breaking episodes. Companies can implement, and support clear operating policies that help to assure safety.

Regulators can recognise that rule-breaking is more than a violation. There are external temptations. These must be uncovered and, if possible, eliminated. ■

New Zealand – Impromptu Display at Airstrip

A school party of seventh formers was camped in the vicinity of the airstrip. The recently qualified (PPL) pilot was one of the group members. He and a friend had left the group during the afternoon to hire an aircraft. When he returned in the PA-38 the pilot made three low passes over the airstrip where his mates were playing cricket. The third pass was reported to be at approximately 50 feet agl. Immediately after this pass, the aircraft was seen to turn into a nearby valley and attempt a 'wing-over' type manoeuvre. The aircraft then nose-dived out of sight. The sound of an impact was heard. Those first on the scene found that the pilot was seriously injured and that the passenger had died.

The valley in which the pilot attempted the manoeuvre was steep-sided and confined, and there would have been no opportunity for him to turn his aircraft around.

Unauthorised low flying, unauthorised carriage of passengers, poor decision-making, and pilot disorientation were all found to be contributing factors in this accident.

Let the Student Do It

This account of a first solo flight comes from the British safety magazine, GASIL No 2 of 1999.

Some months and a few instructors later came the day of my first solo, with the CFI in the righthand seat during a dual circuit before he got out saying the immortal words "Do one circuit, but if you are unhappy with the landing don't hesitate to go round for another try."

I took off and was amazed at how briskly the Cessna 152 leapt into the air this time. The climb-out, crosswind, downwind and base were all perfectly normal. Even final seemed satisfactory with all the checks and procedures completed. However, I suspected that solo the aircraft was very different, bounce-wise, than when there was a 80 kg+ CFI aboard. Anyway, I bounced. The aircraft didn't seem keen to land and I knew all about nosewheel strength limitations so did the sensible thing and went round again.

I suppose I was about ten feet above the runway, but now the Cessna 152 was a very different beast. Sluggish is the best word to describe what now happened, or rather did not happen. I could not climb, the runway was being used up at a rapid pace so I urgently rechecked that the mixture was rich, the throttle fully open, carb heat cold and since it was a fixed landing gear that was about it.

With the hedge between me and the golf course getting awfully close, I scanned all the instruments again for anything odd, this time noticing a white lever which looked a bit out of place. Of course, flaps!, still at full. I had two dramatic effects still to play with – lift and drag – I was about to discover which you lose first when flaps are retracted, which I did with alacrity. The first to go was lift, and I dropped with a thump onto the tarmac. Relieved of the barn doors hanging in the breeze, the aircraft now rocketed, and I mean rocketed, skywards. We missed the hedge, completed an uneventful circuit and managed to land perfectly off the second approach.

I don't remember the debrief comments of the CFI, but I am convinced that the cause of my error was that on every other previous landing the instructors, to a man, had said on rollout "I'll do the flaps". I suppose the idea was to reduce the workload on the student pilot at a very busy time. I'm convinced that it is much better for students to do it themselves because they are much more likely to notice what is wrong, or to do it right first time.

Vector Comment

Indeed, a student should be competently handling all phases of the takeoff and landing without any assistance before being sent solo.

Another danger area is the practice of carrying out multiple touch-and-go landings during circuit training. A student pilot needs a full-stop landing at least every 3rd or 4th landing to (a) be able to practise completing a landing, stopping, clearing the runway and doing the after-landing checks, (b) to have a breather and gather their wits and assess their progress, and (c) to practise the pre-takeoff checks before the next series of touch-and-go landings. ■