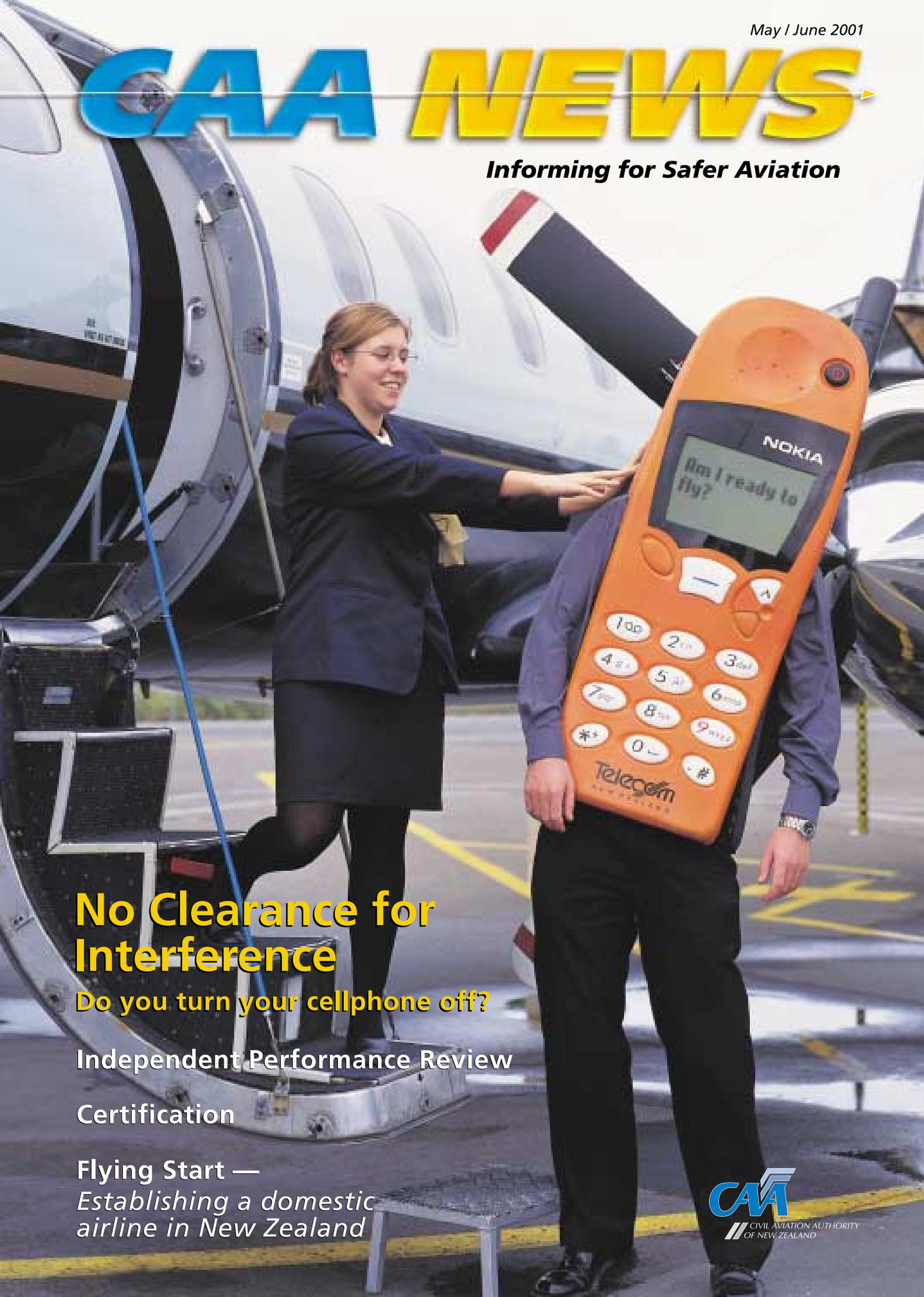


# CAA NEWS

**Informing for Safer Aviation**



## **No Clearance for Interference**

**Do you turn your cellphone off?**

**Independent Performance Review**

**Certification**

**Flying Start —  
Establishing a domestic  
airline in New Zealand**

# No Clearance for Interference

Cellphones are a great way of keeping in touch, but the interference they can cause to aircraft systems at critical flight phases has the potential to get you disconnected – permanently.

Uncontrolled aircraft manoeuvres and avionics interference caused by cellphones and other PEDs (portable electronic devices) is a growing international trend and New Zealand is not immune, with the recent CAA investigation of two cases of possible interference with flight systems.

The most serious occurred on Christmas Eve during a coupled ILS approach into Wellington. At 1400 feet, four miles out, the aircraft suddenly turned right and climbed. The crew went to manual control without further incident. It was suspected a passenger's cellphone rang during the approach.

While that could not be confirmed, defect logs and a check of the aircraft turned up nothing. Two following aircraft reported no problem with the ILS. The possibility of ground interference was rejected.

The incident was raised by the captain and brought to light a similar incident, in 1995, when a cellphone in a cockpit flight bag rang while the aircraft was in cruise and on autopilot. The aircraft rolled 30 degrees before NAV was cancelled and HDG selected. Severity of the incident was reported as moderate.

One of the most recent cases was confirmed when the crew of a B767 on approach to Osaka reported an FMC display data corruption. The flight attendants discovered a passenger using his cellphone, and when it was switched off the FMC displays were restored.

There have been no crashes attributed to the use of PEDs on board aircraft, though it has been examined as a possibility in at least one overseas crash. Other overseas reports highlight the seriousness of the problem.

A UK private pilot found his mobile phone, on standby, caused GPS interference during two critical flight phases. The GPS gave false directions which would have put him in controlled airspace without a clearance had he followed them.

Other threats included false cockpit warnings – increasing crew workload and cutting confidence. System malfunctions, interference in the pilots' headsets and fluctuating compasses can also occur. Autopilots have disconnected or received false signals and a B747 lost all communications with ground control after a cellphone and computer were switched on.

The problem in combating the issue is that, until recently, most of the evidence was anecdotal and proving a cause remained elusive. A UKCAA-sponsored study in 1999 was the first to examine the potential for cellphone interference on avionics and flight systems under controlled conditions, using a Virgin Atlantic Airways B747 and a British Airways B737.

International aviation standards (EUROCAE ED-14 and RTCA DO-160) exist for avionics interference. The test level



depends on the protection offered by the installation and the criticality of the instrument.

Avionics manufactured after 1989 have higher levels of immunity, but the built-in protection assumes interference from outside the aircraft. It is impossible to make equipment completely immune, and the ballgame changes if the interference is from inside the aircraft.

The UKCAA tests showed that cellphone signals inside an aircraft can be cancelled or amplified, and due to reflections from the metallic structure the strength of the signal could easily exceed trigger levels for critical avionics. Interference could be influenced by seat location and passenger numbers.

The report covered only intentional transmission, which can occur in standby or call-active mode. The report said it was reasonable to assume the field strength of the interfering telephone transmission would exceed by a significant margin the levels used in susceptibility tests for critical avionics prior to 1989. Equipment qualified to later versions of the standard could be affected, but only to the minimum permitted levels. Since 1997, severely exposed avionics have been tested to a maximum interference of 600V/m (Volts/metre) at 18 GHz, down to the minimum test level of 1V/m at 2 GHz.

Cellphones transmit in bands of around 400, 900 and 1800 MHz. The UKCAA testing showed a cellphone transmitting

at 1.0 Watt and 1782 MHz from the rear cabin of the B737 created a power level in the cockpit of 0.29 V/m. From the front of the cabin the cellphone generated 2.56 V/m in the cockpit and 1.26 V/m in the avionics bay. Both exceeded the 1984 maximum interference test level of 1.0V/m. That standard only saw testing up to 1215 MHz. The team found control systems reacted to microwave signals from onboard cellphones at frequencies ranging from 380 to 1700 MHz.

New Zealand cellphones use between 0.6 and 0.8 Watts between 825 and 914 MHz, depending on the network.

The same 1700 MHz transmissions from the rear of the B747 did not produce significant interference for avionics at the front of the aircraft, but the potential remained to affect equipment in the rear.

The report recommended continuing a blanket prohibition on cellphone use while the engines are running and notices reminding passengers to switch off cellphones. The report noted airlines might wish to evaluate detection equipment. It also recommended the standard be reviewed upwards and that more research be done.

But it's not just cellphones. There is an increasing use of small electronic devices in the air, including shavers, handheld games and laptop computers. All can produce an alternating current that can be inducted into aircraft systems.

Telephones installed on aircraft are not considered PEDs. If a radio or cellphone uses an antenna attached to the aircraft it is considered part of the aircraft and is tested for interference with other systems.

However, overseas reports suggest devices not previously a concern are operating in new frequency bands and in several modes, meaning some systems previously thought not to be affected are now picking up interference.

Airlines are taking the problem seriously – in July 1999 a British court jailed a passenger for a year for endangering an aircraft after he had consistently refused to turn off his cellphone.

New Zealand passengers have been fined for using cellphones in the air, and there have been numerous other incidents. Last year a New Zealand domestic flight was delayed by at least 20 minutes while a stewardess searched the overhead lockers for a ringing cellphone that none of the passengers would admit to owning. On another flight, a passenger did the right thing and told flight attendants his phone – now in the baggage hold – had been left on. The aircraft was taxied back to the gate, baggage unloaded, phone turned off and the flight got away late.

CAA safety investigator Steven Walker says one of the challenges in tackling the issue appears to be a lack of suitable detection equipment. Current proprietary detectors can only detect a phone when it “handshakes” with a ground base tower, when it rings, or when it is in use. Telecom’s cellphones handshake every 20 minutes, while Vodafone’s vary between five minutes if the phone is mobile, to four hours if it’s not. The detection difficulties leave education as the best option – for both passengers and flight crew.

“There are steps we can explore in terms of education and

safety cards at check-ins and a reminder at the air bridge. There’s a sign on the briefing cards on aircraft and the PA briefing, but there’s nothing at check-in – and that’s where it needs to be reinforced, with duplication on the airbridge or gate for cabin baggage,” Mr Walker says.

“The evidence suggests that it’s an unsafe situation when a cellphone is switched on in an aircraft. There is a chance it might happen, and that’s unacceptable really. We have got to take steps to deal with that.

“We can’t detect it, but we can remind passengers of the reasons to switch their phones off. How many are being left on? People might forget to turn them off. Some may think they are not going to use it, no one will know so I’ll leave it on – but they are unaware that it could affect the aircraft systems if someone rings their number.”

Telecom New Zealand compliance and compatibility manager Simon Cooke-Willis says avionics are protected from high power transmitters outside the aircraft, such as radar, TV and radio signals, and it is signals from inside the aircraft that are the problem. A radio transmitter or PED of any sort is likely to

be close to internal wiring and could affect instruments, and internal aircraft structures could amplify the signal. He says one solution could be preventing cellphones from receiving or transmitting by using light metallic screening in overhead lockers and the baggage hold. Shielding inside problem devices could be another solution.

The US Federal Communications Commission bans the use of cellphones while in the air to prevent their signal crossing market boundaries, locking on to multiple cell sites and causing frequency problems. In New Zealand, no government agency does – leaving the situation largely for airlines to control.

The FAA prohibits the use of any PED on a US-registered civil aircraft operated by the holder of an air carrier operating certificate, an operating certificate, or any other aircraft during IFR, though the rule permits the use of some devices deemed safe by the operator. The rule was initially developed in 1961 to ban the use of FM radios when VHF omni-directional range (VOR) was being used for navigation. The FAA later determined other PEDs were also a potential communication and navigation hazard.

The FAA recommends PEDs that intentionally transmit – including cellphones, CB radios and remote control devices – be banned by operators. It does not prohibit their use before the aircraft has left the gate, providing they cause no interference to navigation or communication equipment. It says passengers should be told of the use limitations and dangers, as well as banning use during take off and landing.

New Zealand Civil Aviation Rule 91.7, covering PEDs is similar, with exceptions for heart pacemakers, hearing aids, portable voice recorders, electric shavers and electronic watches. A further amendment is expected to be in place by July or August. The amendment proposes to ban any PED capable of transmitting any electromagnetic energy during flight under IFR – generally all commercial flights – prohibiting cellphones, CB radios and similar devices. ■



# Independent PERFORMANCE REVIEW

The Minister of Transport, Mr Mark Gosche, has released the independent performance review of the Civil Aviation Authority.

Each transport sector agency is subject to three-yearly review, but this one had broader terms of reference than usual, in keeping with the pre-election policy. The review was conducted by PricewaterhouseCoopers and two international aviation regulatory consultants – Jerry O’Day of Australia, and Don Spruston of Canada. Mr Spruston is the former head of Transport Canada, and a member of the 1998 Ministerial Inquiry Committee. The team was assisted by Peter Davey of the Ministry of Transport.

“The review is the most comprehensive examination of New Zealand’s aviation safety systems in more than a decade,” Mr Gosche said.

The report sends some clear messages to both the CAA and industry, he said.

While it acknowledges the CAA has achieved a great deal, it also calls on the Authority to be more consistently consultative, transparent and collaborative, and says that its internal systems needed more strategic focus, Mr Gosche said.

The report also recommended that the CAA assess its legal compliance risks, and develop strategies to mitigate those risks. Other recommendations included a call for the CAA to improve its relationships with the industry.

“There is a clear message to the CAA to be more open to industry participation in discussions of issues, objectives and policies, including more face to face contact between the CAA staff and industry participants.”

The review also had concerns about the aviation industry.

“The review team expressed considerable concern with the small and general aviation sectors. They noted that safety targets are not being achieved and that the accident record in these sectors compares poorly with other developed nations. There’s a big challenge for those sectors of the industry.

I’ve not had the opportunity to discuss this with industry representatives yet, but I am keen to as soon as possible.

“It’s in everyone’s interests to get the smaller aviation operators to lift their game. I’m keen to work with them to help that happen.”

The CAA has accepted the report’s recommendations and will take the report as a blueprint for the future, he said.

The Director of Civil Aviation Kevin Ward said the review report comes at a time when the CAA has undertaken its most significant internal change since its formation in 1992. It provides a most useful guide for the CAA and industry over the next five years.

## What the report says

The report found that the fundamental structure of aviation safety regulation is sound. It identifies the need for a broad government policy statement for aviation safety, over and above the principles laid out in the Act.

## CAA

The CAA has a great many strengths and has achieved a great deal in developing its capability as a regulator, the report says, but there are areas for improvement, most notably in developing its own culture to one that is more consistently consultative, transparent and collaborative, and with internal systems that provide more strategic focus.

The report says that the CAA was achieving “safety at reasonable cost” as required by the Civil Aviation Act but the system of oversight of the smaller commercial and general aviation sectors and the improvement of safety and safety attitudes in these sectors needed priority attention.

## Industry

It says that the safety record of larger airlines – where 96 percent of passengers are carried – is good and comparable with other developed nations. These operators have a strong commitment to safety and

the regulatory system is working well.

The safety record of small commercial and general aviation operators is a major concern and is considerably worse than comparable nations. The report says there is a considerable problem with the safety “culture” of many operators in this sector and the regulatory system was not working well. Some in the sector were “in denial” with a reluctance to face up to the poor safety performance while being antagonistic to regulation. The report says changing this sector’s attitudes to safety was a primary area for CAA and industry focus.

## CIRAG

It recommends changes to the way the CAA-Industry Rules Advisory Group (CIRAG) works, with the establishment of an executive Regulatory Review panel involving CAA, industry and the public to assess mechanisms for improved priority for rule-making prior to submission to the Ministry of Transport. It says CIRAG should be restructured to ensure a more open and transparent process, with all aviation sectors being given the opportunity to be represented at the executive planning level.

## Accident Investigation

The report also calls for a review of legislation and the way in which accident and incident inquiry is conducted, in order to clearly delineate the responsibilities of the CAA and the Transport Accident Investigation Commission (TAIC). The intention was to ensure the intent of ICAO Annex 13 is met and remove any suggestion of conflict of interest, while ensuring CAA resources are more correctly directed primarily at the promotion of safety.

It also wants a confidential reporting system established.

## What now?

The report contains a significant number of recommendations, mostly directed at the CAA and aimed at improving its strategy and planning, processes for change management, governance and leadership,

# Nominations Called for Director's Awards

Nominations for the Director of Civil Aviation Awards are once again being called for.

The Director of Civil Aviation Awards are presented each year to an individual, and to a company or organisation, that has made an outstanding contribution to aviation safety – someone who has gone out of their way to do things the right way. The awards are open to anyone involved in civil aviation in New Zealand.

The winner of last year's Individual Award was Freedom Air's Manager of Operations, Michael Young. The organisation award was won by Skywork Helicopters Ltd.

Wanganui Aero Work chief engineer Rob Hartnell and Helicopters New Zealand chief pilot Jim Wilson were Highly Commended.

Two organisations were also Highly

Commended. The first was the Warbird and Vintage Industry Group. It was agreed by the CIRAG Executive that this group was a model technical study group (TSG). The second was the Auckland Airspace Users Group, Special Events Sub-Group, which formulated protocols for high-profile and high-exposure events such as the Whitbread Yacht Race, Rally of New Zealand, APEC, World Offshore Powerboat Championships, Louis Vuitton Challenger Series and the America's Cup.

Send your nominations to:

**Martyn Gosling**  
CAA Communications Coordinator  
P O Box 31-441  
Lower Hutt

Tel: 0-4-560 9400

Fax: 0-4-566 5030

Email: [goslingm@caa.govt.nz](mailto:goslingm@caa.govt.nz)

culture, and stakeholder relationships. Some recommendations relate to the regulatory framework. These include the need for a broad government policy statement on civil aviation safety, the need for improvements in the rulemaking processes, and the need for clarification of responsibilities and processes for accident investigation.

The report also makes a number of recommendations aimed at improving the effectiveness of CAA's oversight of the smaller commercial and general aviation operators, including the need for stronger presence in the field, and the need for stronger partnerships with industry.

Mr Ward said that a review by the MoT of accident investigation processes is already planned and this report provides insight for that. The CAA always notifies TAIC of all fatal accidents, and all significant events. The CAA has a very skilled and experienced team of investigators and conducts about 80 percent of all aviation fatal accidents.

Mr Ward said the recommendations from the report were welcome. The CAA was restructured last year and is still undergoing change. The issues raised by the report would assist that process. He welcomed the very positive outcomes from the report while recognising that the CAA has a lot of work to do. ■

## How to get a copy

The 149-page report can be accessed from either the Ministry of Transport's web site [www.transport.govt.nz](http://www.transport.govt.nz) or through the link from the CAA's website [www.caa.govt.nz](http://www.caa.govt.nz).

Printed copies are available from the Ministry of Transport, 38-42 Waring Taylor Street, P O Box 3175, Wellington or Tel: 0-4-472 1253.

## Medical Matters Update

Further to Medical Matters we featured in the last (March/April) issue of *CAA News*.

### Ministerial Review of Medical Standards

The Minister of Transport, the Hon Mark Gosche, has announced that Mr Bruce Corkill, a Wellington lawyer, will chair the review. A medical expert will also be appointed. Submissions to the review team close on 1 June, and a draft report will be sent to submitters for comment in July.

You are encouraged to participate in this review. There is information about it on the Ministry of Transport web site: [www.transport.govt.nz](http://www.transport.govt.nz)

You can send your submissions to: Part 67 Review Team, Ministry of Transport, P O Box 3175, Wellington; or Fax: 0-4-498 0665; or Email: [review@transport.govt.nz](mailto:review@transport.govt.nz)

The team will review the 1% threshold test and its application in New Zealand. They will also review Civil Aviation Rules, Part 67 *Medical Standards and Certification*, especially the medical standards contained in Subpart B.

### The Civil Aviation Amendment Bill (No 2)

Submissions on the Civil Aviation Amendment Bill (No 2) are now closed, and the Transport and Industrial Relations Select Committee is considering those submissions prior to preparing its report to Parliament.

The Bill proposes changes to the system of medical certification of pilots and seeks to give the Director of Civil Aviation clear powers to do things such as issue and withdraw medical certificates.

There has been a high level of industry and public interest in the Bill, with a large number of submissions, and significant media coverage of some of the issues. The Select Committee extended the time for submissions more than once to allow more time for interested parties to have their say.

The next step is for the Select Committee to report back to the House, recommending any changes to the Bill it thinks necessary. The timing of the Bill's passage through Parliament will be determined by the Government's legislative priorities.

# Certification

February marked the deadline for all Part 125 operators and Part 119/135 twin-engine fixed and rotary wing (nine seats or less) operators to be certificated. The deadline for other Part 135 operators is set for 28 February 2003. CAA News spoke to operators about the process and found that, while for some organisations not a lot had changed, all were reaping the benefits of the new system.

## South-West Helicopters

South-West Helicopters chief executive Ian Buick gives certification a big thumbs up, but wants more teeth in aviation surveillance and enforcement.

The company evolved five years ago from a staff buy-out of the two southern-most Helicopter Line bases when it decided commercial operations were not viable.

The four founding members, Ian, Bill Black, Trevor Green and Carol Brown did not want to throw away 90 years' experience in the industry.

"Most people were supportive, and said good on us for having a go. I guess now they would see us as a solid company with a good customer base, though I don't really ask others' opinions.

"It's a highly competitive business. The returns are not as high as some would have you think, but it is a successful company."

Starting with two aircraft, the company now boasts four – two AS 350s, a Hughes 500D and a SA 315B heavy lift helicopter, operating from bases at Te Anau, Tuatapere and soon from Wanaka, though not much else has changed.

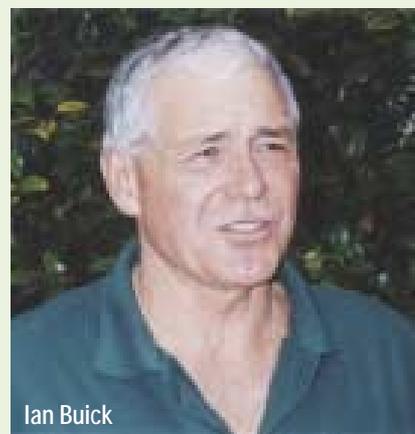
"With certification, there is nothing we are doing differently now to what we did before, except it is more transparent. Maybe before there were a few more bits of paper we should have been keeping, but flight following, flight planning and aircraft maintenance hasn't changed. It's always been as high a standard as we can get it.

"With transparency, an auditor can see that what we say is being done is being done."

But Ian says while certification makes it harder for "bottom dwellers" to cheat, the next step is to make it harder still.

He advocates tamper-proof flight time recorders as one measure to stop bad practice, and says the next is for legislation to give enforcement more teeth.

"CAA have to ensure a just certification process. Rather than having anyone certified, we must eliminate the nonsense.



Ian Buick

We can't have people who are certified cheating the system – dividing dollars by 2000 to get their hours – that sort of thing has got to stop.

"Bottom feeders drag the whole business down. Some see it as competition, but it's not competition if it's not a level playing field. Pilots have to recognise the seriousness of offending, and legislation has to impose penalties reflecting the real gravity of it."

Unlike a truck driver, a pilot does not have to put down anything in his logbook until the end of the day.

"It's the biggest problem in aviation and the worst sector is rotary operators, simply because of the high cost of operating a rotary-wing aircraft and the high turnover of components. If you're going to cheat, the money you can make is greater – so long as you're game to fly it. The answer is to make sure that everything that flies is seen to fly."

"I want CAA to demonstrate to me in five years that certification is not just expensive window dressing. The enforcement and surveillance side has got to work."

Although there was opposition to re-certification when it was first raised, Ian says restructuring the CAA into business groups, with staff with time "at the sharp end who know what needs to be done" has helped. South-West Helicopters was hit with surveillance three days before audit – not that Ian was complaining.

The operation's four machines are the

minimum needed to trigger the requirement for a QA manager, but Ian says apart from that he sees no difference. All are rated for air transport operations, whether used for it or not. He can't see why there should be two standards of aircraft and won't fly to a lesser one.

"You never overcome safety issues. Down here it's weather and terrain. We operate in New Zealand's worst weather and some pretty demanding terrain. You can only train, develop local knowledge and have good met info.

With pilots like Bill Black, who has been flying in the area for 36 years, experience is not a problem. Two contract pilots the company uses were born and bred in the area.

"It's no use having a CPL and 300 instructor hours here, it's not quite like that."

Other talent is put to good use. Carol Brown has been broadcasting weather to Fiordland fishermen for years. The company uses that, two websites, and information from those already in the area to check weather at key points. There is, Ian says, no better way.

"The key issues are high standards of maintenance – in Airworks South Island's Peter James we have the best helicopter engineer in the country. If you wanted him to cut corners he would tell you to take it away. I wish there were more of them in the industry."

The company is also considering getting Bill to do his airline flight examiner's rating.

"Rather than having someone turn up once a year and kick the tyres, he can see them all several times a year in different conditions and doing different things. That's a far more useful process.

"Combining good business with good aviation practice can be hard, but it can be done. It boils down to common sense – you have to make money to maintain your aircraft."

But it still remains "too bloody easy" to have an accident.

"We do not have many incidents. We had one when a long-line over a skid almost brought a helicopter down, and we had a bad accident two years ago."

The helicopter went into a hillside at full power on a clear day, killing five on board. No conclusive cause was established,

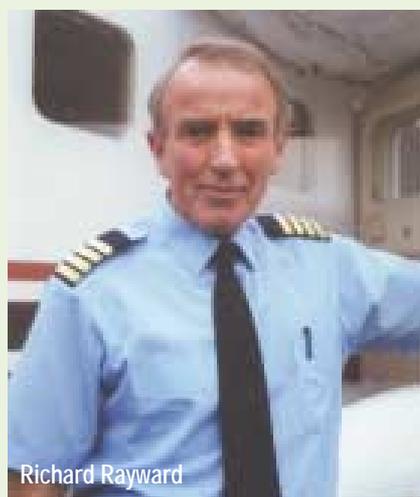
though pilot incapacitation was a possibility.

"You think about not having one, but I don't think you should fear having an accident. You have got to deeply respect the unforgiving nature of the environment we work in."

Ian says that, with the vagaries of the environment, machinery and human beings, there always will be accidents. All that can be done is constant vigilance to minimise them.

"Some costs can't be quantified. You can't put a price on a life. The people I like to fly with are those who have a strong survival instinct and are interested in staying in this life, not determined to go on to the next."

## Air Safaris



Air Safaris' operations manager Richard Rayward says the Tekapo-based company was working towards the standards required by the new rules well before they came into force, but the need to enter the new system provided the impetus to see the work completed.

"The changes have happened over a slightly broader span. The main area that has changed considerably is the quality assurance area.

"What's really happened is that we have brought together the best of what we were doing, incorporated new requirements and moulded things to fit the new system.

"There has been a lot more opportunity for taking responsibility for your own way of doing things, which we welcomed. You have a lot more scope to develop systems and procedures appropriate to

the organisation – more flexibility to adapt things to your own circumstances.

"It's been quite a learning experience for us. There is now a stronger awareness of our obligations, and more formal procedures in many areas."

Richard says the changes have strengthened the company, and they were driven by all staff, not just management.

"One hurdle has been that VFR scenic operation of Air Safaris', utilising 15-passenger twin-engine aircraft, has taken some moulding into Part 125. Some areas seem not to have envisaged that situation," he says.

"We're lucky we're a relatively small team. We get the opportunity to sit around and talk about issues almost on a daily basis. There are always ideas coming in from all parts of the company. They also come from other operators and businesses."

Information flow is crucial to the company's open safety policy, with all staff closely involved. A tourist scenic operator is dealing on a daily basis with constantly changing circumstances, often under time pressure – juggling passenger numbers and economics, coping with rapidly changing weather, numbers and timings, and any number of other issues. The company had already developed procedures to help counter that. Sometimes they are small things, but they all count.

"One of those is the Air Safaris walk around – once the passengers are loaded, and before the pilot climbs aboard. It's a disciplined final check around the aircraft and includes luggage lockers and doors, prop locks, cowl catches, oil filler caps, fuel caps, external control locks, tyres, and checking for any items of clothing which may have been left hanging on the aircraft – which is not unheard of in a tourist operation.

"The proof of the pudding is that it's almost as many years as I can remember since we had an oversight, under pressure, of something like an incorrectly fitted cap or a door not properly shut, things like that."

Aircraft drills also incorporate redundancy. As well as standard pre-takeoff checks, the line-up drill double-checks vital items.

"Robust standard operating procedures are the best protection against pressure in this business."

... continued from previous page

The company has a training and checking regime that aims at maintaining consistent proficiency in standard and emergency procedures throughout the year.

Pressure caused by the changeable Mount Cook National Park weather, where Air Safaris conducts most of its operations, is countered as much as possible before an aircraft even leaves the ground.

"If it's doubtful that we will be able to offer the whole trip, we go to great pains to make sure customers understand they will likely be doing an abbreviated flight. We take no money until after the flight, when we set a fair price for what has been covered, so the pilot is not under pressure to deliver the full circuit.

"It's really a matter of everybody maintaining safe and professional airmanship in all parts of the business. It is vital that standards are supported from the top, so that the senior guys are consistently leading by example."

Richard is aware it's not possible to have every answer. The loss of a Cessna 177 Cardinal in the Mount Cook area in September 1998 proved that, and blemished an enviable 25-year safety record.

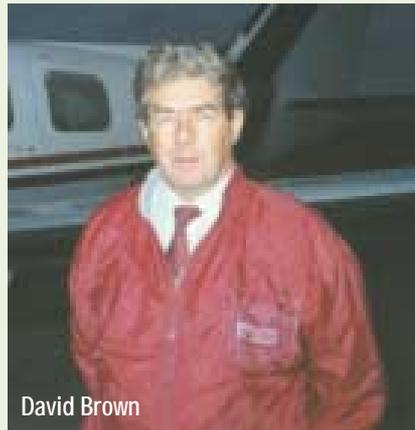
"A serious accident is your absolute worst nightmare. We all strive so hard to prevent them, but if it happens despite your best efforts, you have to look very closely at all aspects of your operation. Sometimes you may have to accept that something can occur which is outside your direct control."

He says an accident or incident is a real test of an operation, and there is much to be learned from it. The Air Safaris team came closer together in a very positive way and pulled very strongly through a very tough period.

"It goes through your mind that you tried so hard to ensure an accident would not happen, and there is a real shock that it has. If an accident occurred where you knew there were some areas of genuine concern, it would perhaps not come as such a shock.

"In terms of emotional and financial disruption there is a huge impact. The adage holds very true – if you think safety is expensive, wait till you have an accident."

## Christian Aviation



David Brown

David Brown, of Ardmore-based Christian Aviation, says even with the new rules, attention to detail remains the key to safety. The best protection is to "get well and truly known as a nit-picking old \*#S@\*&%".

His operation is continually evolving in terms of fine points, though the approach has changed very little with certification.

"The main changes are reflected in two ways – those driven by the rule changes, which are mostly administrative – and a changing experience level of pilots being offered as staff. This is the major driver. Training now must be quite specific and detailed to ensure the culture of our organisation is transferred to the pilot and that SOPs are followed."

The operation began in 1984 with two staff who were both experienced engineers and aircrew. It now flies four twin-engine aircraft on charter and air ambulance services throughout New Zealand and the South Pacific, and two single-engine aircraft in the Auckland area.

"Although procedures were developed, they were derived from the collective experience. Now we have to take developed procedures and impress them upon less experienced people. This has meant a uniformly structured organisation. I can't say it has made it better, but it's made it consistently safe.

"In a small organisation, not only is the pilot responsible for safety, there is also the very important area of customer care. A customer who feels looked after in the small points knows the major areas are taken care of. This requires a strong instillation into a pilot who sees time with us as a step to the bigger ones."

The rule change brought with it more formality to internal QA. David says there is a danger the QA process can replace personal competency. Personal contact needs to be maintained by management to ensure standards remain high.

"The main safety issue is becoming evident in the pilot experience levels of candidates. I don't think there was a safety issue before, but it needs to be said complacency is always a problem, and strong self-discipline is required to ensure continued high levels of professionalism.

"We concentrate on identifying an accident looking for a place to happen, but the opposite is also true, and a culture needs to be developed for safety looking for a place to happen – systemic safety.

"We have a strong emphasis on personal responsibility and accountability. That includes very minor non-operational matters.

"Incident reporting is a key issue. Anything that you would not expect to occur is an incident. It could be a passenger discomfort item or aircraft damage. This has allowed us to impress upon pilots that factual verifiable incident reporting is neutral and can save their reputations as much as be used for disciplinary action."

As always, safety has to be considered alongside management issues.

"We constantly have to be looking at working smarter. There are very low margins against high overheads, and maintenance has to be carefully planned. Making good use of non-operational flying for familiarisation is another. In a small organisation a change of one staff member is significant. Although procedures are laid down, management has to evaluate skills and tailor input around that."

"There is no such thing as an accident that has no pre-discernible cause. Others really put a lot of effort into making one happen. Accidents are an attitude problem. Allowing people to have attitudes that are not cautious will ensure an accident.

"You are trying to identify potential areas and take modifying action. Training is important in this role in getting staff to try and anticipate probable outcomes and thinking 'what if' scenarios.

"Having an accident is obviously a matter for serious concern and making people aware of the consequences of an accident promotes good prevention thinking."



Merv Falconer

CAA General Aviation fixed wing manager Merv Falconer says the new rules and certification have provided a huge impetus for industry to lift its game by putting responsibility for safety back in the operators' court.

Part 121 operators with aircraft of more than 30 seats or a payload capacity of more than 3410 kg were the first to be certified – by 28 February 2000 – and even though certification

of all fixed-wing and rotary-wing multi-engine operators was achieved in February this year, already an improved standard is being noticed in those sectors.

Any industry has operators stretching the limits and cutting corners, but Mr Falconer says the new rules make bad practice that much harder in the aviation sector.

“The onus is on them to be compliant, just as it is for CAA to ensure they are compliant through auditing and inspection. A lot of GA clients are just coming under the new rules, but we certainly detect a higher standard being demonstrated,” he says.

Part 121 covers mainly the large airlines. Part 125 covers aircraft with a seating configuration of 10 to 30 seats, payload capacity of 3410 kg or less, and a MCTOW of greater than 5700 kg. That means all heavy aircraft, light twins and heavy singles are now certificated. Part 135 – single-engine aeroplanes and helicopters – is the only category still outstanding, and CAA has set a deadline of 28 February 2003 for all Part 135 operators to be certificated.

Operators undergo an initial certification assessment. This is to determine that they are capable of operating to the procedures they have specified in their exposition, and civil aviation legislation. Six months later, CAA evaluates their level of compliance before awarding a longer-term certificate.

“In simple terms the operator says what they are going to do, we check it is compliant with the rules, and then they go and do it. The process allows the operator to set a higher standard. Once an operator is issued with a certificate, that's what they are audited against later.”

Mr Falconer says there are many advantages to the new system. For one it has encouraged operators to update their processes and take a good look at their operation. A quality assurance manager, a maintenance controller, and in some cases a security officer, are required, as well as an operational chief pilot (as under the old rules).

“The main one is the Quality Assurance manager. He or she is the CAA representative in the company. They are the one that has got to enforce and make sure they are complying with the rules.

“The way the system works, if there is an incident or problem, they must have a process to go through and come up with a recommendation to eliminate it or come up with a solution. It's one of the many advantages of the new rules,” he says.

With the Part 135 deadline looming, on 28 February 2003, CAA is urging operators to get the certification process under way and start updating expositions now to make the process as smooth as possible. ■

# Kevin Ward to Leave CAA



Chairman of the Civil Aviation Authority, Rodger Fisher, announced in March that Civil Aviation Director, Kevin Ward, would not seek re-appointment when his contract expires at the end of August this year.

“Mr Ward has put in place a new regulatory structure, a new management structure at the CAA, and taken us through the next round of strategic planning. The Authority accepts his move with regret, but respects that decision and its timing.

“There is huge complexity in being a fair and firm regulator in this highly technical and rapidly changing industry, and in balancing the needs of industry with the demands of the public and Government. Mr Ward's achievements in one of the most challenging state sector jobs has been outstanding,” Mr Fisher said.

Mr Ward said he had advised the CAA board of his intentions to leave a year ago, and a final one-year term had been agreed. The announcement of his intention to leave is being made now to enable the recruitment process to start for his replacement.

“The reforms we began in 1992 are almost complete, and I stayed on to see them through and to undertake a restructure of the CAA,” Mr Ward said. “Nine years as chief executive of any organisation is a long time. I made the decision last year that when these changes were in place it would be time for me to leave to bring in a new cycle of development at the CAA.”

“It has been an exciting and rewarding period of development in New Zealand aviation,” Mr Ward said. “I have been very proud to be involved in the CAA's leadership of so many fundamental changes, and with such a dedicated and expert team of professionals.

“The CAA has achieved a huge amount since 1992, both in safety improvements for the public and its own performance as a state agency. The impact of the changes, and the effort required – both within industry and within the CAA – cannot be overstated. We have all changed for the better.” Mr Ward said.

Mr Ward leaves the CAA on 31 August. ■

## New VFR Flight Plan

### Seminars

**The new domestic flight plan is due to be introduced around the middle of the year (see CAA News March/April 2001). In preparation for its introduction, Airways New Zealand will be hosting seminars around the country.**

**There are significant changes to the existing flight plan and how it works. There are also changes in the way an alerting service is provided, and how flight information is delivered to VFR pilots in uncontrolled airspace.**

**The schedule of seminars is in the latest “Planefacts”; or see your local Aero Club; or the CAA web site under “What's New”.**

**From 5 June to 4 July — Southland to Northland**

# Flying Start

## Establishing a domestic airline in New Zealand

The demise of Qantas New Zealand has resulted in a flood of airlines expressing interest in operating domestically in New Zealand. So what's involved in setting up an airline?

For a start, airlines need to state an intention to operate, which is as simple as filling out a form. After that, things quickly become more complex.

CAA discusses the requirements with the new airline, and they will be asked to pay the estimated cost of an Air Operator Certificate under Civil Aviation Rules, Part 119 *Air Operator – Certification*. The money is charged up front to cover CAA should the airline go no further. Depending on the size of the airline, this could be \$50,000 upwards.

CAA then interviews the senior airline staff – such as the chief executive, managers of flight operations and ground support, training, maintenance, quality assurance and security as well as the occurrence investigator. Those people have to be "fit and proper" individuals to do the job. An airline could fail to get off the ground at that stage – a chief executive with insufficient knowledge of the Civil Aviation Rules could hardly ensure their airline complies with them. In addition, the senior staff will need to meet experience requirements in operational flying and management.

The airline then has to prepare an exposition – the collection of manuals covering each area of operation, detailing how it will run its business in line with the Civil Aviation Rules. The exposition covers areas such as flight operations, maintenance, quality assurance, training, security of aircraft, carriage of dangerous goods, passengers and cargo, and occurrence investigation. The detail must be tailored to suit the operation. Depending on the size of the airline, one exposition area alone could run to several volumes.

The aim of the exposition is to gain a Part 119 Air Operator Certificate, which requires several rules to be addressed.

The airline management will have to consider how their aircraft will be maintained to meet the requirements of Civil Aviation Rules, Part 145. This could be part of the airline organisation or could be contracted out. Either way,



Photograph courtesy Paul Harrison

aircraft maintenance engineers must be licensed or supervised by a licensed engineer. Pilots operate under separate rules and must be licensed appropriately for the aircraft they are flying.

The airline may carry out training under Part 119. Again, it might contract the work out to a Part 141 certificated organisation – or gain its own Part 141 certificate.

Under Part 108 *Air Operator Security Programme*, aircraft must be kept secure when unattended. The airline must also have procedures for unattended baggage – especially when it makes it on board and a passenger does not. The rule also covers restraining passengers in case of an incident of aircraft endangerment. Procedures for the carriage of dangerous goods are required by Part 92.

A consultant might write the exposition, but it will require extensive liaison with the senior airline staff to ensure it fits the intended procedures. It must also demonstrate to the CAA that the operation has what it takes to ensure all Civil Aviation Rules are met and that the airline will be able to continually and consistently meet the required safety standards.

The CAA assesses the exposition and then checks the operation against the written policies and procedures in it. A larger airline flying aircraft over 30 seats will also require certification under Part 119/121, while airlines flying medium aircraft of 10 to 30 seats will require Part 119/125 certification.

The work required can make certification a time consuming and exacting process for both the airline and the CAA.

If satisfied with the standards, normally a six-month Part 119 Air Operator Certificate will be issued by the Director of Civil Aviation. Five months after the initial issue, the airline is given a compliance inspection to see how it is working and given the chance to brush up any procedures it needs to. If still satisfied with standards, the Director will issue a two-year Part 119 Air Operator Certificate. This forms the basis of future surveillance of the airline and is what it is audited against.

In addition, the airline company must be registered in New Zealand and, long-term, be flying New Zealand-registered aircraft.

If the airline is flying a new type not on the New Zealand Civil Register – such as a B777 or Airbus – there will be extra costs associated with "first of type" certification. If the aircraft is twin-engine and operating on extended twin operations (ETOPS), there are further requirements to be met, but these are only necessary for international flights.

While the senior staff are on board almost from the outset to help with the exposition, the majority of staff – pilots, ground crew, flight attendants and check-in staff – are employed further down the track. When they are trained, the airline is set to fly. ■

# From the enforcement files...

It's nearly a hundred years since the first powered flight, and since then accumulated experience has been used to improve the safety of flying. Our Rules are based on such knowledge and experience, and infringing them compromises safety. The CAA takes enforcement action to ensure that the Rules are taken seriously and thus reduce unsafe behaviour.

## Operating a helicopter without an Agriculture Aircraft Operator Certificate (10 charges)

Section 46 of the Civil Aviation Act 1990  
Auckland District Court – 8 November 2000

The defendant company was an agricultural aircraft operator. Application had been made for the issue of an Agricultural Aircraft Operator Certificate. This was acknowledged and put on hold pending an inquiry about how the nominated chief pilot could discharge a supervisory role over the company's operations, as he was also the chief pilot of two other companies.

The nominated chief pilot did not respond, and the application was closed, with the defendants being informed to reapply when they had a suitable nomination for chief pilot. For this reason no Part 137 certificate was issued.

It was then established that the defendants had conducted a total of 29 commercial agricultural operations between 16 October 1999 and 18 March 2000, and customers had been invoiced for those flights. The defendant said that he had applied for a Part 137 certificate on 7 October 1999 and presumed that the application was proceeding. Clients were pressing him to start.

The defendant company pleaded guilty. The company was fined \$200 on each of 10 charges and ordered to pay \$130 Court costs on each charge. It was also ordered to pay a solicitor's fee of \$400 on one charge. Total fines and costs \$3,700.

## Operator did not keep daily flight records containing the total time for each flight

Rule 19.101 and Civil Aviation Act 1990 – 52(1)(a)  
Auckland District Court – 9 February 2001

The defendant hired a Robinson R22 helicopter on six separate occasions. Flight times were recorded from an electrically operated Hobbs meter. Once the helicopter is started, the meter begins to record the engine time, but it was possible for the pilot to disconnect the circuit breaker that supplied the Hobbs meter.

Because of fuel consumption anomalies, the aircraft owner installed another Hobbs meter, which was powered from another source and concealed from the pilot. The owner then observed a clear trend of under-reporting in several flights. This indicated that the defendant was not completing the daily flight records accurately and was disengaging the instrument circuit breaker to stop the visible Hobbs meter recording the engine time. A prosecution was mounted by the Civil Aviation Authority on the basis that, if the engine hours are not recorded correctly by the pilot-in-command, this could potentially lead to the missing of essential maintenance and checks.

The defendant pleaded guilty to six charges. He was convicted and fined \$500 with Court costs of \$130 and a solicitor's fee of \$125 on each charge. The total fines and penalties imposed were \$4,530. ■

# Letter to the Editor

## Report of the Taumarunui Coroner

I comment on the "Report of the Taumarunui Coroner into the Cherokee crash near Taumarunui in 1999", as printed in the March/April edition of *CAA News*.

It appears to me that the Coroner was given very selective information on which to base his findings. Coroners are all very skilled and experienced legal people, but have to use the information supplied to them to arrive at their conclusions. Mr McDonald, the pilot involved in the accident, obviously did exhibit a poor sense of responsibility in his dealings with the medical examiners and should have accepted that he was probably unfit to fly an aeroplane. I would consider that he was also unfit to drive a motor vehicle. I fail to see why CAA supplied their version of the theoretical '1% rule' to the Coroner – this only clouded the issue. Was the Coroner aware that the '1% rule' is only a theory, which has now been rejected by overseas aviation authorities? I was startled to see the suggestion by the Coroner that 70 years of age be the limit for a pilot licence. Should one take this to the logical conclusion, that all licences to practice, or certificates of competency, be withdrawn at age 70, the biblical limit of life, society would collapse. All drivers, electricians, boiler attendants, aircraft engineers, doctors, dentists, lawyers, politicians, ships officers, etc, 'over the hill' and automatically prevented from further activity at three score years and ten.

Finally, it would be interesting to know more about the quinine factor in the accident. How much of it, and why was it being used by Mr McDonald. During World War Two, many of the servicemen in the Pacific theatre were using quite hefty amounts of quinine, for a long period. What adverse effects did this have upon these men?

Thank you for your attention.

Don Palmer  
North Canterbury  
April 2001

## CAA News responds

Thank you for your email and comments. You are right in that Coroners are very skilled people. They have wide discretion, under the law, to make inquiries and investigate deaths. The coroner can summons witnesses to attend an inquest and question each witness on oath.

The people the coroner considers have an interest in the inquest, such as relatives, can also question witnesses. They may also apply to call their own witnesses. Through these legal processes, the relevant evidence is presented and examined.

Your concern about the Coroner's recommendation that "Pilot's licences should be age limited" is shared by others, and you are encouraged to participate in the Minister's Review of Medical Standards.

The Coroner's report in this case discusses the effects of quinine on older pilots. The full Coroner's report, and the accident report (91/1311), are on the CAA web site: [www.caa.govt.nz](http://www.caa.govt.nz)