

vector

Anatomy of a Safety Investigation

Director's Awards 2016

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Q300s at Uncontrolled Aerodromes

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Anatomy of a Safety Investigation

So you've reported an occurrence and now the CAA Safety Investigation Unit wants to come calling. What do they want to know? What can you expect from them?



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Director's Awards 2016

In June, a pioneering CEO and a new skydiving company received this year's Director of Civil Aviation Awards. The Flight Instructor Award went to a flight examiner with 15,000+ hours.



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2016 Airspace Changes

New Visual Navigation Charts are effective 10 November 2016, and numerous airspace changes come into effect at the same time. You need to read the AIP Supplement, but we highlight some of the major changes.



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Q300s at Uncontrolled Aerodromes

A heads-up to general aviation pilots about Air New Zealand Q300s now flying into some uncontrolled aerodromes.

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Cover: What do CAA's safety investigators look for after an occurrence? See "Anatomy of a Safety Investigation" on page 4. Photo: istockphoto.com/baona

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It's Called a 'Life' Jacket for a Reason

A ditching in 2013 illustrated how important life jacket wearing is, even if passing over water for a little while. And a could-have-ditched incident last year echoed that.

In August 2015, when the engine of ZK-RTE broke down five nautical miles off the Canterbury coast, the pilots executed a pretty flawless return to Christchurch International Airport.

Their emergency training kicked in, and while they were fully aware of the danger they were in, the atmosphere in the Piper Arrow cockpit was calm and measured.

The only hiccup in their studied calm was having to hastily don life jackets. While stowed in the aircraft, they had not been put on before the flight took off, despite the fact it was, for some time, over water.

Tension rose when the pilot-in-command, Craig Vause, had trouble getting his life jacket on, because it twisted as he tried to do so. He was, however, successful on a second attempt.

Steven Perreau, in the right seat, told *Vector* in November 2015 that not having those life jackets already on was a real mistake.

"It was a curious decision, given my practice of always doing so if I'm flying over water," Steven told us. "It was definitely not the right decision to make!"

A 2003 report for Transport Canada, *Survival in Cold Water*, says that operating close to shore or in a group, or with an emergency beacon, are not reasons to go without wearing a life jacket.

Death from cold shock could occur within 3 to 5 minutes, the report said.

A quality life jacket will keep its wearer buoyant for as long as needed. American research indicates that general aviation ditching survival rates could be as high as 90 per cent if the aircraft occupants are wearing life jackets.

Modern inflatable aviation life jackets are more comfortable and fit for purpose than the old, bulky ones. And the cost, relative to the cost of flying, is not high.

So there are two fewer reasons to resist wearing one.

Remember, however, that the life jacket must meet certain requirements. They can be found in Part 91, Appendix A14.

On 24 February 2013, a Robinson R44 helicopter ditched, fortunately, in only waist-deep water, about 80 metres off the shore of Lake Rotorua.

The subsequent Transport Accident Investigation Commission report said, "The helicopter was fitted with life

jackets for everyone on board, and these were stored underneath the seats. The life jackets were not used during the emergency as there was not enough time for the occupants to locate and don them."¹

Rule 91.525 *Flights over water* states there should be one life jacket for each person on board a variety of aircraft in a variety of situations, and that those life jackets should be stowed in a "position that is readily accessible from the seat or berth occupied by the person". The pilot-in-command should brief passengers on the place the life jackets are stowed, as part of the standard passenger safety briefing.

But, as *Vector* reported exactly 13 years ago, "If the ditching preparations begin at a low altitude, the chances of the aircraft's occupants being able to get into a conventional airline-style life jacket in time are almost nil".

If the intention is to fly over water during any part of the journey, the CAA strongly recommends a pre-flight procedure should include all occupants donning a life jacket.

It could save lives. At the very least, it will save unnecessary angst.

Just ask Craig and Steven. ■

If the intention is to fly over water, even if briefly, the pre-flight procedure should include all occupants donning a life jacket.

¹ Inquiry AO-2013-002: Robinson R44, ZK-HAD, engine power loss and ditching, Lake Rotorua, 24 February 2013.

Anatomy of a **Safety Invest**

What does it actually mean when the CAA's safety investigators come calling? What they are looking for? Why? And what can you expect as a result?



It took just on two years for the CAA's Principal Safety Adviser, Alan Moselen, to find the cause of this accident. Safety investigations are often complicated by the extent of damage and the environment in which the accident occurs. For instance, in water, perishable evidence disappears quickly.

Every Tuesday morning, the CAA's safety investigators grab a coffee, and sit down to sift through the average 125 complaints, concerns, and reports that have flowed in to the CAA over the previous seven days.

"Not everything is in our scope," says Team Leader Paul Breuilly. "We will forward, for instance, information about a single bird strike to the airport concerned for it to deal with. Other reports we might put 'in the pot' to see if we get more like them."

The other issues are divided up among the seven-member team and each investigator, at any one time, is dealing with about 20 occurrences.

"Some reports can take up to 12 months to resolve. Others are dealt with in a single phone call.

"They can be anything from unruly airline passengers to mechanical defect reports, to airspace incidents, to runway incursions," says Paul.

"Each investigator has an area of expertise," says Safety Investigator Peter Stevenson-Wright. "We're all former or current pilots, engineers, or air traffic controllers. And we look at the particular issue we're assigned through that lens of experience.

"But we also work very much as a team. Institutional knowledge is really important in our area of work. While one person is assigned to investigate a particular issue, they may say to another team member, 'Weren't you looking at something similar last year?' So there's lots of information sharing, both formal and informal."

Report. Please.

Seven safety investigators cannot be with every pilot, engineer, and operator in New Zealand to witness every incident, so the team relies on reporting from the aviation community, the public, and CAA auditors.

"Obviously we want lots of reports," says Peter, "but we could also do with better detail in some of them. 'I landed

Investigation

late and hit the fence' doesn't tell us anywhere near enough.

"What we would like to know is what happened, in what circumstances – for instance, what was the weather like at the time, and the details of any relevant NOTAMs – why the occurrence happened, and what you've done to prevent it happening again."

A report can be done online, by email, over the phone, and now by using the new CAA app, *Here and Now* (see end of article).

Safety Investigator Siobhan Mandich says it would help the team's work if pilots also submitted a report even when the issue is one of maintenance. For instance, a chip light comes on, a magneto fails, or the aircraft experiences rough running or a loss of power.

"A defect report will tell us what the issue is, but a pilot's report will tell us

"We're all former, or current, pilots, engineers, and air traffic controllers. And we look at the particular issue we're assigned through that lens of experience."

more of the circumstances around what was experienced and felt.

"If we know what the pilot experiences, we can pass that on to other pilots to say, 'If you experience this... it could be this'.

"The more information we have to work with, the more chance we have of preventing a possible mishap."

The safety investigators work with operators or individuals to find out how an occurrence happened.

"The benefits of reporting to the safety regulator are two-fold," says Safety

Investigator, Colin Grounell. "Firstly, it allows us to accumulate data, identify trends in risk, and then do something about it. Secondly, reporting allows the operator or individual to reflect on why things went wrong.

"We can then discuss with them what might help.

"We recently worked with an operator who'd had an occurrence, which in the end came down to him being fatigued. He had 30 pilots, 15 aircraft, he flew every day himself, and he was also responsible for the day-to-day running of the operation.

"We needed the clout of the CAA"

Neville Williamson, Chief Engineer of Flightline Aviation in Dunedin, was just about the first person – in mid-2014 – to identify that something was awry with the fuel control units (FCU) in the R44 helicopter.

There'd been a major loss of power at altitude of an R44 engine in Queenstown a few months before, caused by a blocked injector, only a short time after an engine bulk strip.

"The FCU was removed and refitted at the time," says Neville, "but only to facilitate the bulk strip.

"So we checked the entire fuel system, concerned that new fuel lines and fuel tanks had just been installed and maybe some form of contamination had entered the system. Nothing was found and yet it had failed.

"The blocked injector had what looked like thread tape lodged in it which baffled us completely, as we never use anything like that in a fuel system.

"It was suggested by the manufacturer that the substance was pollen entering the fuel system through the refuelling process. To me, that suggested the manufacturer was also baffled."

But Neville soon found there had been other failures, including in Australia.

"Once the safety investigators at CAA realised it wasn't a one-off, they worked quite quickly to get things happening," says Neville.

"Paul (Breuilly) was persistent with the manufacturer, getting them to acknowledge the material in the fuel control unit was the problem. It turned out the culprit was the nylon type thrust washer in the mixture control valve on the FCU.

"Paul also liaised with CASA in Australia, FAA in the United States, and CAA in the United Kingdom.

"He liaised with the CAA guys who prepare the ADs, and it was him that eventually got a change in those units, to a different type of friction device, and that stopped the problem.

"I could never have got that kind of action, just some engineer from Dunedin. We needed the clout of the CAA, backed up by the FAA."

Neville advises other operators to get their ducks in a row before contacting CAA about an occurrence.

"Do your own investigation, and come up with remedies, so when you do bring CAA on board, you can say, 'This is what we're doing, or plan to do, to fix the problem'. They can see you've done your groundwork."

Continued over >>



Once recovered from the water, Alan Moselen had to painstakingly lay out the wreckage of the aircraft to reflect its actual configuration, to eliminate or confirm the possibility of a mechanical problem.

“We suggested he get someone in to help. And he did. And that’s all it took to fix the problem.”

For other answers, the safety investigators are increasingly looking at the ‘system’ in which the occurrence happened, not just the occurrence itself.

“Understanding the system, and system influences behind occurrences,” says Safety Investigator Matt Harris, “helps the appropriate safety-related decisions to be made.”

“For instance, an occurrence could result from the pressure on operators to make the most of opportunities provided by growing tourism in New Zealand. While that appears to

be unrelated to aviation, it is in the bigger picture, and could be influencing operator behaviour.”

Report Good Stuff. Please.

The team would like to hear more reports of when things go *right*.

“When an operator says, ‘This component is not normally inspected every three months, but we do that, and we are finding...’ that gives us great information to disseminate through industry,” says Siobhan Mandich.

“When you’re hearing nothing but negative events, it can give you a

distorted view of what is going wrong, compared with what is going right.

“But actually 90 per cent of stuff is being done just fine. It’s only a fraction that needs fixing.”

Safety Investigation Manager, Jim Burtenshaw, says a safety investigation doesn’t look to apportion blame or liability.

“We’re searching for the safety lessons for the individual, operator, and aviation system.

“It’s extremely rare that we uncover reckless behaviour, or a flagrant abuse of the rules. But when we do, the safety investigation is suspended, and the appropriate CAA operational manager has to make a decision about what happens next. But as I say, such cases are remarkably few.”

Paul Breuille says, “In terms of criticising the operator when there’s been a major accident, we find they’re hard enough on themselves. We don’t need to add to their anguish.”

“Understanding the system, and system influences behind occurrences,” says investigator Matt Harris, “helps the appropriate safety-related decisions to be made.”

"We're there to help them find the cause of the problem and to suggest improvements.

"It's just about everyone going home safely at the end of the day."

Jim Burtenshaw says most of what we suggest to improve safety is practical. "It might be some of the senior hands spending time doing more training of the juniors, or rearranging a work schedule so people aren't so fatigued.

"People should be keen to use us. Our time and expertise costs them nothing. And we can be a conduit between them and other CAA units.

"The investigators are very aware that not every operator has the resources of a major airline, so we're not going in to say 'you have to buy this, and that, and the next thing'. We might instead say 'hey, have you thought of hiring this part, instead of buying it?'"

Investigating Accidents

When there's been an accident, CAA safety investigators attend the site to try to establish how the accident happened.

They want to find the causes and prevent them happening again. They want to identify areas that may pose a threat to the strength of the entire aviation system, and they want to identify emerging risks and provide information

"It's extremely rare that we uncover reckless behaviour, or a flagrant abuse of the rules."

to those creating interventions to stop accidents occurring.

"Some of the things that determine if the CAA is going to investigate an accident," says Safety Investigator Dan Foley, "include whether there are fatalities, whether the accident comes under a high-risk area (and is therefore a priority for the CAA to investigate), the history of risk in that particular sector, and the probability of learning something we can use to improve the safety of the system."

Field investigations are highly resource-intensive. "Before leaving the office, we have to assemble all the information that we already have – that's from the Rescue Coordination Centre, the Police, the CAA database, and the MetService.

"Then we do a health and safety risk assessment to ensure anything that may be a hazard to the investigators is identified and mitigated.

"After that, we make all the logistical arrangements such as flights and accommodation. We assemble all the equipment we think we might need and travel to the site.

"We do a physical examination of the scene, interview survivors and witnesses, gather documents and items, and move the wreckage to storage.

"And then the real task begins: analysis, discussions, research, more interviews, writing. Sometimes it can be as long as 18 months for a fatal accident report to be completed.

"But it's worth all that work if it means we can keep others in the system safe," says Dan.

How to Report

The easiest way to report an occurrence is online, www.caa.govt.nz/report.

Or use the *Here and Now* app, available on iOS and Android. The app uses your phone's GPS functions to pinpoint the exact location of the accident or incident. You can also attach photos to your report by using the '+' button under the location map.

The *How to Report Occurrences* booklet is available free by emailing info@caa.govt.nz. ■

"A new set of eyes"

On 7 January 2015, a new pilot working for Skydive Taupo was conducting his first day of unsupervised flying, when his aircraft's engine suffered a catastrophic failure a few minutes after becoming airborne.

The pilot, six crew, and six passengers all evacuated safely, but the aircraft, a Pacific Aerospace P-750XL, crashed into Lake Taupo.

The subsequent CAA investigation focussed on staff training – including procedures for emergencies – and aircraft maintenance.

Company Chief Pilot, Mark Funnell,

says being under investigation can be a daunting experience.

"But we were reassured by knowing that I, the company, and the engineers had all done everything right.

"We also had the paperwork to back up what we said we'd done. The experience confirmed why keeping records is essential. The CAA investigation was much broader than an audit. If the investigator wants to look at something outside of what might be looked at in an audit, they just jump straight into it.

"But there's nothing to worry about if you don't have anything to hide, and

we found the investigators were very friendly, and complimentary about the organisation.

"Between our own reflection on events, and discussions with the investigators, we found a few areas to improve.

"A new set of eyes sometimes sees things you may have missed. We aim to be continually improving, but it's sometimes not until procedures are tested that room for improvement can be found. We therefore embraced the suggestions of the investigators, and quickly acted on them."

Director's Awards 2016

A pioneering CEO and a new skydiving company were the recipients of this year's Director of Civil Aviation Awards. The Flight Instructor Award went to a flight examiner with 15,000+ hours.

Skydiving Kiwis

Jumping out of a plane at age 19 set Lee Barraclough on the path to representing New Zealand in skydiving, and then running his own company, Skydiving Kiwis – 2016's recipient of the Director's Award for an Organisation.

While past recipients have had long histories in aviation, Skydiving Kiwis has only a four-year history. But as Director of Civil Aviation, Graeme Harris, explained, "Skydiving Kiwis has been recognised by many in the sector, and in the CAA, as an example of dedication and adherence to high standards, with the clear understanding that, in aviation, compliance with rules is simply not enough."

Lee describes himself as a human body pilot, "Flying with my own body is what attracted me to the sport."

"It was such a buzz that owning my own drop zone became my ultimate goal. I wanted to create the best sport and tandem skydiving facility in New Zealand."

"Skydiving as a sport has come second to commercial tandem facilities. I thought New Zealand was missing a real sporting drop zone. We intended to fill that gap."

To save time in getting a Part 115 certificate, Skydiving Kiwis used a consultant's manual to get the company off the ground. But within a year, Lee had rewritten the manual to better represent Skydiving Kiwis. The CAA staff involved in safety oversight of the company have been impressed by its drive to operate well above the minimum standards set by the Civil Aviation Rules.

"Writing more than 95 per cent of our Part 115 exposition gave me great insight into the safety aspects of our operation," says Lee. "If I feel there's a better way to do something, we make a call to the CAA and discuss it. Constant communication with the regulator is the key."

"With Part 115 being so new, our sector has the ability to shape our own safety culture."

From a leased Cessna 180, and two second-hand tandem rigs operating out of Rangitata Island in Canterbury, Skydiving Kiwis has moved to Ashburton Airport. There it has steadily grown with a second leased aircraft, six tandem rigs, six new student equipment sets, and a staff of six.

"We have a lot of plans in the pipeline," says Lee. "New Zealand has so far to go in this amazing sport and we intend to be there every step of the way!"

Lee Barraclough, left, diving over Canterbury with some of New Zealand's most experienced skydivers Laszlo Csizmadia, Olly Burgin, and Chris Brook.





Director's Award for an Individual recipient Richard Rayward.

Richard Rayward

Richard Rayward was literally clinging to the side of a mountain in Corsica when he got a text from his son, Tim, that he'd received the Director's Award for an Individual. With no email access, the CEO of Tekapo-based Air Safaris, texted a speech for someone else to accept the award on his behalf. In those few characters, he demonstrated his humility by saying that he saw the Award more as recognition for the whole team around him, and all who had worked to make Air Safaris a success.

Richard started flying in the 1960s in a Cessna 180. He built his experience with venison recovery to cover flying expenses. To achieve this in remote locations, he needed to construct the airstrips himself.

The airstrip construction would continue – although Richard describes himself as “a bit of a reluctant aerodrome operator” – as his business developed. First at Mesopotamia Station when the company started as a certificated operator, and then at Lake Tekapo, when the company moved their operations there. Finally, they took over a shingle topdressing strip at Franz Josef and had it sealed, and a terminal building built.

In the four decades since starting commercial operations, Air Safaris has grown to a fleet of nine aircraft, including Nomads carrying 15 passengers, a Robinson 44 helicopter, and a Cessna 180 used to ferry staff around.

“The 180 is a nostalgic throwback to what we first started with,” says Richard.

In that time, he's seen a lot of change, especially with scenic flights.

“Now, people are focused on getting great photos or videos on their phones. It's a pity, as I think most people would get much more out of the flight if they left their cameras at home! But it's just how things are changing, and we have to change too to ensure we keep meeting the passengers' expectations.”

Passengers' expectations, of course, also include safety. And that's key for Air Safaris.

“Safety is imbedded into our culture. We want to provide a safe operation for our passengers and our staff. For us, safety is a matter of pride,” says Richard.

Peter Dixon

When Director Graeme Harris presented the Civil Aviation Authority Flight Instructor Award to Christchurch-based flight examiner Peter Dixon, he was full of praise. “His firm but approachable manner has endeared him to candidate, instructor, manager, and peers alike. He has become one of the most respected professionals within the flight training sector in New Zealand.”

While unexpected for Peter, his peers had nominated him, and his nomination was strongly supported within the CAA, according to Graeme.

Peter balanced his passion for flying with his career in farming. But eventually aviation took over.

“I'd finally got my PPL, so I thought that the next logical step was to get a CPL. And then of course a flight instructor rating,” says Peter.

He consolidated his flying skills and gained commercial experience and instructional time, before becoming involved in the administration and management of the Canterbury Aero Club, culminating with a three-year stint as president.

In 1988, he joined the Air Transport Division of the Ministry of Transport, and was assigned to the newly formed ASL (Aviation Services Limited) in July 1992, where he has been a flight examiner for almost 25 years. During that period he worked part-time flying with the Christchurch Air Ambulance. This enabled him to gain his ATPL. He now has more than 15,000 hours flight time.

For Peter, the greatest joy in the role is seeing his students achieve success in the industry.

“I've boarded countless flights where I encounter former students or test candidates as the captain and first officer. Some of them, I've done all their tests right from CPL, to B-cats, D-cats, and instrument ratings.

“Seeing them achieve success is wonderful, but the best is when I know they've come away from the exam – whether passing or failing – having learned something.

“It's not a box-ticking exercise, it's about learning, and regardless of the result, 99 per cent of them will come up to me after the debrief and say thanks and shake my hand, whether they passed or not.

“So I must be doing something right.” ■



Flight Instructor of the Year Peter Dixon.

OEM or PMA Parts?

There's some confusion among aircraft owners and operators about the use of alternatives to original equipment manufacturer parts for type-certificated products.

So the brake pads are worn out? Well, you can't just wander down to 'Super Cheap Aerospace' for a replacement to give to your engineer. But you may be able to use a part other than the manufacturer's original.

The most straightforward option is, of course, the original equipment manufacturer (OEM) part, bought directly from the manufacturer, or the manufacturer's local dealer.

"Purchasers of OEM parts who look through the manufacturer's Illustrated Parts Catalogue (IPC) for a replacement part," says CAA Maintenance Examiner Rick Ellis, "need to be aware the IPC may not include the most recent parts.

"So they would do well to check the manufacturer's web site as well."

A second option is the PMA (parts manufacturer approval) replacement or modification part. These can be identical (with or without licensing agreement) to the type certificated design, or developed using processes such as test and computation or reverse engineering.

American aviation safety expert – and former National Transportation Safety Board member – John Goglia, wrote in 2012 that "...PMA parts undergo the same rigorous approval and quality control process as OEM parts..." and "...there is no safety difference between OEM and PMA parts. I am not aware of any accident or incident where a properly approved PMA part was deemed to be the causal factor."¹

The main assurance for aircraft owners and engineers when they use alternative parts, is documentary evidence proving eligibility, including the part number and the aircraft into which the part can be fitted.

For a PMA part, there should be a statement of eligibility – for the part to be installed on a type certificated product by make and model.

It's important to be aware that a replacement part may also constitute a design change (such as uprating the part), normally approved under a Supplemental Type Certificate (STC).



An FAA-approved PMA RR 250 First Stage Compressor Wheel.

The physical evidence as to its 'legitimacy' is the certificate detailing the STC number and, again, the aircraft model it will fit.

"Finally," says Rick Ellis, "an engineer may suggest to an aircraft owner that a locally fabricated part can be used. That is, one fabricated by the engineer during the course of maintenance, according to acceptable technical data that they are

entitled to use, and released to service by the engineer who carried out the maintenance."

Also consider that for leased aircraft, the lessee should check for any conditions surrounding the use of PMA or alternative parts required by the lessor.

Additionally, if you are fitting PMA parts, be aware that if selling the aircraft offshore, some overseas regulators have specific requirements as to what they will accept.

In 2007, the March/April issue of *Vector* offered the following advice – it remains just as relevant today.

- » Establish whether the part is an original replacement, a PMA part or is covered by an STC.
- » Request a properly completed FAA Form 8130-3 airworthiness approval tag or equivalent Release Document for all parts regardless of the source or approval. This is of critical importance in the case of finite-life parts.
- » When ordering a PMA part, request a copy of the relevant FAA-PMA authorization with the part, so that you can prove eligibility for fitting to your aircraft.
- » When the part is installed, keep a copy of all associated documentation in the work package.
- » Know where you can find information on Instructions for Continued Airworthiness, airworthiness limitations, and warranties, if applicable.
- » Establish a means of monitoring the issue of Service Bulletins, Airworthiness Directives and other information applicable to the parts.

If you have any questions regarding the use of PMA parts call your local Aviation Safety Adviser or the CAA Aircraft Certification Unit. ■

1 OEM or PMA Parts – Is There a Difference?
www.aviationpros.com

GPS and RNAV Flight Planning

As New Zealand's airspace evolves to accommodate more efficient PBN procedures, accurate flight planning data is becoming ever more important.

Anomalies in flight plans can heap unnecessary work on already-busy air traffic controllers. Such errors are likely to complicate matters for ATC, as Performance Based Navigation (PBN) ushers in a new era of air traffic management.

"Globally, air navigation system providers are looking to automation and real time information-sharing as ways of reducing the chance of human error, and in the pursuit of greater efficiency," says John Wilson, former Airways specialist.

But to harness that potential, Airways needs to have confidence that the flight planning data it is receiving is accurate.

To 'G' or not to 'G'

"The data that we have seen strongly suggests that a number of pilots have been listing GPS in their IFR flight plans without the required approval," says Steve Kelly, CAA Navigation Systems and Project Specialist.

"Filing 'G' in item 10 of the flight plan information isn't just a simple statement of 'Yes, I've got GPS on board the aircraft.' Item 10 is a declaration of your approved navigational capabilities and that information allows air traffic control

Flight plan for a Beechcraft Duchess equipped with GPS approved for IFR enroute and terminal operations, with approved pilots and an RNP 1 approval.

to coordinate their air traffic management picture," says Steve.

Note 1 in *AIP New Zealand* ENR 1.10 – 10 states, "Inclusion of the letter G indicates that an aircraft meets the conditions and requirements for the use of GNSS (GPS) equipment".

"Before you can specify GPS in the flight plan" continues Steve, "you need to have a GPS that's serviceable, approved for use in an IFR environment, and your licence must have a GPS endorsement."

RNAV Specification

To correctly indicate PBN capability in a flight plan, you need to supply two 'field' elements:

- » Field 10(a) *Equipment and Capabilities* requires the entry of 'R' denoting PBN capability; **and**
- » Field 18 *Other information* requires the entry of a PBN data set. This is the field identifier PBN, immediately followed by a sequence of applicable PBN capability descriptors.

"If only one of these field elements is present in a flight plan," explains John Wilson, "SkyLine (the air traffic computer system) will process the flight as though it has no PBN capability."

The consequence if the plan does not contain both elements will be that ATC will issue only conventional clearances for instrument flight plans (IFPs). If the pilot in command then queries the clearance and requests a PBN IFP, there may be a delay before a new clearance can be issued.

"Air traffic control is not required to police a flight's compliance with PBN specifications," continues John.

"On the flip side, if a flight plan indicates a PBN capability which the flight does not actually have (or have approval for), ATC will issue a clearance for a procedure, the requirements of which cannot be complied with. It's the pilots' responsibility to ensure that the applicable requirements are met, both in terms of flight planning and acceptance of ATC clearances," says John. ■

Part 19 Subpart D – IFR Operations: GNSS

Following feedback on a discussion document published in February 2016, a proposed update to the rules relating to GNSS IFR will be published soon as an NPRM. To receive an email when this is published, subscribe to our notification service, www.caa.govt.nz/subscribe.

Heli Passenger Seating – No More Fish Bins

Actually, your passengers *can't* sit on fish bins and backpacks in the rear of your helicopter. It's a breach of the rules.

After being alerted to the practice of helicopter passengers sitting on baggage and cargo, the CAA wants to make it clear this is a breach of rule 91.207.

"Anything other than a seat or 'berth' meeting the correct aviation standard is not permitted," says Grant Twaddle, CAA Team Leader of Flight Operations – Helicopter.

"Approved seats or berths have to provide the required performance, load weight, strength, material and workmanship, protection of the structure, and safety belt anchorage.

"It's obvious that a backpack or any other baggage or cargo would not meet those requirements."

The purpose of rule 91.207 is to ensure passengers' safety. To do that, a seat needs to be in a fixed position, and stable, especially important during takeoff and landing.

But passengers sitting on a backpack have to ground themselves and remain stationary, as best they can, by using their legs.

"Seats are also designed to give the occupant crash protection by absorbing

(or 'attenuating') some of the impact forces," says Grant.

"Sitting on a pack or other objects obviously does not give the occupant that protection."

Roger Shepherd, CAA's Investigating Officer ARCs, says he would not want to be an operator ending up in the Coroner's Court, "Trying to explain why they thought a fish bin full of blue cod would be a better seat than the one designed by McDonnell Douglas."

Pilots allowing passengers to sit on their backpacks are also non-compliant with rule 91.213.

Under this rule, a person operating an aircraft has to ensure, before takeoff or landing, that all passenger baggage is stowed in a baggage locker, or under a passenger seat, so that it cannot slide forward under crash impact, or hinder the evacuation of the aircraft in an emergency.

In addition, unsecured items in the cabin become missiles in an accident.

'Baggage' is defined in the Civil Aviation Rules as, "personal property of passengers or crew carried on an aircraft by agreement with the operator,

or personal property of passengers or crew that is intended by passengers or crew to be carried on an aircraft."

That makes a backpack 'baggage'.

"It's also obvious," says Grant, "that any other objects sometimes used for sitting on, such as fish bins, do not meet the standards required of a proper seat.

"There are plenty of cargo pods on the market that are approved via STCs and modifications. These are what should be used to carry luggage and other items.

"Paying helicopter passengers are entitled to maximum safety measures and the only method of achieving that, for this issue, is to have them sitting in seats of an acceptable standard, and restrained by a seat belt or harness.

"We want to give the helicopter sector a heads-up that we'll be taking a close interest in their expositions to ensure they reflect the wording and spirit of rules 91.207 and 91.213," says Grant. ■

Photo: istockphoto.com/brittak

There are plenty of cargo pods on the market that are approved via STCs and modifications.

Rex Kenny Retires

The Royal Aeronautical Society once described the CAA's sport 'n rec manager as "an enthusiastic and capable manager ... with high safety standards and unfailing support for the best interests of the sector." Here at *Vector*, we could not have said it any better.

Rex Kenny is looking forward to not having to get up at five each morning, after retiring from the CAA in late July.

Twenty-one years with the regulator, his final role as manager of special flight operations and recreational aviation, Rex is particularly pleased with the work his unit did in the development of Part 115 (Adventure Aviation).

"The sector has become significantly more professional. Although some operators at first weren't at all keen on regulation, they eventually changed their thinking, so full credit to them."

Rex says the fact that, twice in the last three years, a Part 115 operator has won the organisation award at the annual Director's Awards, sends a message to the whole sector.

"The Director can put his hand in his pocket and come out with a note that says, 'I have confidence in you'."

"Yeah, it was very good to see."

After a 21-year career as an air force engineer, Rex joined the air division of the Ministry of Transport, then had a stint with Aviation Services Ltd as a Licensed Aircraft Maintenance Engineer examiner, before joining the CAA in 1995.

He took a major role in the development of Part 66 (Aircraft Maintenance Personnel Licensing), which introduced the

Certificate of Inspection Authorisation and Annual Reviews of Airworthiness (now Reviews of Airworthiness).

"Before that, we would review the paperwork in here, but we really had no idea what the aircraft looked like. It could have been a bucket of corrosion sitting out on the airfield.

"We were finding a whole heap of modifications and stuff that had never been approved or signed off, and we found aircraft operating well outside their centre of gravity limits.

"Part 66 allowed industry, via the Inspection Authorisation certificate holders, to sign off the reviews of airworthiness, which under the new rules allowed continued aircraft operation under a non-terminating airworthiness certificate. That was certainly a step forward from the previous terminating airworthiness certificates.

"It was a significant change that got the whole fleet up to a much higher standard of airworthiness.

"Part 66 has been amended only in very recent times, so 1997 to 2016 is not a bad run."

Rex also championed the introduction of the Recreational Pilot Licence, and worked closely with the Sport Aircraft Association in the development and introduction of the licence category.

"The RPL has reduced costs to pure recreational pilots and its take-up has been very pleasing," he says.

Continued over >>



Rex Kenny with his team leader, Jeanette Lusty.



Rex always attended the sport and recreation flyins where he would be besieged with questions from amateur aircraft builders and microlighters – he patiently answered them all. This photo is typical of Rex giving a talk at one of these events, offering advice, and updating participants on any rule changes.

Rex is also proud of his 'sport n rec' team's relationship with the aviation community.

"We've worked really hard to understand how their businesses and clubs work, so we can be certain we can help them achieve compliance.

"I believe the standards for microlights and amateur-built aircraft represent the best regulatory system in the world. A number of countries have told us that."

Clearly, participants also appreciate Rex's dedication.

He was, in 1999, made the recipient of the Gliding Association (now Gliding New Zealand) Friendship Cup for an "outstanding contribution" to the sector during the preceding year.

According to the citation, as the gliding movement's main contact in CAA, Rex had gone "above and beyond" in helping it get Part 149 certification (Aviation Recreation Organisations – Certification).

It's the only time the award has gone to a CAA staffer.

In 2014, Rex received the Royal Aeronautical Society's Meritorious Award for "long term contribution and practical achievement in aerospace".

And for days before his departure, Rex's computer inbox was stuffed with 'sorry you are leaving' emails from aviation participants.

But, having successfully ushered in Parts 101 and 102 ("our rules surrounding RPAS operations are world-leading", he says), it is time, Rex believes, to step away.

But his involvement with aviation will continue. His third amateur-built aircraft, a Sonex, awaits him at Hood Aerodrome in Masterton.

"Hopefully, I'll have more time to fly it now!" ■

Director Appointed to ICAO Navigation Group

The person overseeing safety in New Zealand's civil aviation sector will be flying to Bangkok more often after being appointed to also lead the ICAO group supervising air navigation planning and implementation in the Asia Pacific region.

The Director of Civil Aviation, Graeme Harris, has added to his workload by taking on the chairmanship of the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG).

The International Civil Aviation Organization (ICAO) group oversees the development of the regional Air Navigation Plan (of which New Zealand's New Southern Sky programme is a subset).

The group meets annually at the ICAO regional office in Bangkok, and there are several specialty sub-group meetings throughout the year. Graeme will be joining the CAA's Manager Aeronautical Services, Sean Rogers, who is New Zealand's representative in the group. Airways also participates in APANPIRG activities.

APANPIRG's work focusses on continuous development and subsequent implementation of the Asia/Pacific Air Navigation Plan.

Arun Mishra, Bangkok-based ICAO Regional Director first suggested Graeme consider accepting the position. Graeme sought the approval of the CAA Board before accepting the nomination for what is normally a three-year term.

Graeme says that he had two main reasons for accepting the role. Firstly, it will strengthen New Zealand's profile and provide excellent access to decision makers in a region that contains some very significant markets for the export of aviation services and products.

Secondly, it will provide an opportunity to champion the ongoing improvement in aviation safety in the Pacific region.

The Deputy Chief Executive of the CAA, John Kay, says the appointment is a feather in New Zealand's aviation safety cap.

"Graeme would have to have been backed by a number of other ICAO States to be appointed.

"It says something about the esteem in which he is held around the region, and the way he is leading the safety of civil aviation in New Zealand, that he should be asked to lead such a significant group." ■

Director of Civil Aviation
Graeme Harris



2016 Airspace Changes

New Visual Navigation Charts will become effective 10 November 2016, and a number of airspace changes will come into effect at the same time.

All airspace changes are detailed in AIP Supplement 16/11. Here's an overview of the changes, but to get the full picture you'll need to refer to the supplement and the new charts. These pages can be lifted out for easy reference as you study the supplement.

All documents relating to the changes, including consultation and development, are available on the CAA web site, www.caa.govt.nz, "Airspace – Airspace Review".

MBZ and CFZ Reminders

As a number of changes relate to mandatory broadcast zones (MBZs) and common frequency zones (CFZ), now's a good time to brush up on their requirements.

MBZs

These zones are established throughout the country to give increased protection

to aircraft in uncontrolled airspace where high traffic density or special conditions exist.

Pilots must broadcast their position and intentions on the MBZ frequency on entry, when joining an aerodrome circuit, prior to entering a runway, and at regular intervals when in the MBZ. You can find information on MBZs in *AIP New Zealand* ENR 5.3 Section 4, and on the VNCs.

CFZs

CFZs promote the use of a specified single radio frequency, and are especially important in areas where several other frequency areas overlap.

You should transmit all relevant information about your flight and intentions at entry, or at other times when safety requires.

CFZ information is found in *AIP New Zealand* ENR 5.3 Section 5, and on the VNCs.

NORTHLAND AIRSPACE CHANGES

New MBZ Kerikeri South

NZB180 *Kerikeri South* with lower limits of 3500 ft and 6500 ft has been established.

This MBZ will facilitate the descent of turbo-prop passenger transport operations, increasing their situational awareness when descending outside controlled airspace.

The upper level of the MBZ is the lower limit of controlled airspace (9500 ft).

The stepped lower levels are as follows:

- » 3500 ft between the southern boundary of the extended Kerikeri MBZ (100 NM Auckland/13 NM Kerikeri) and 20 NM south of Kerikeri; and
- » 6500 ft between 20 NM and 30 NM Kerikeri.

The width of NZB180 also accommodates departing aircraft cleared via the Kerikeri-Springfield track, used as part of the air traffic flow procedures for departures to Auckland.

The frequency is the same as the Kerikeri MBZ – 119.4 MHz.

Amendment to Kerikeri MBZ

Now coded NZB177, Kerikeri's MBZ north and south boundaries have been extended to encompass RNAV approaches and holds at the initial approach fixes OTAHA and OPARE.

Due to terrain, there is a step up in the transponder mandatory airspace to the north with a lower limit of 3000 ft.

The south boundary is extended to align with the 100 NM Auckland controlled airspace boundary line, and the eastern boundary now encompasses the Bay of Islands Hospital heliport.

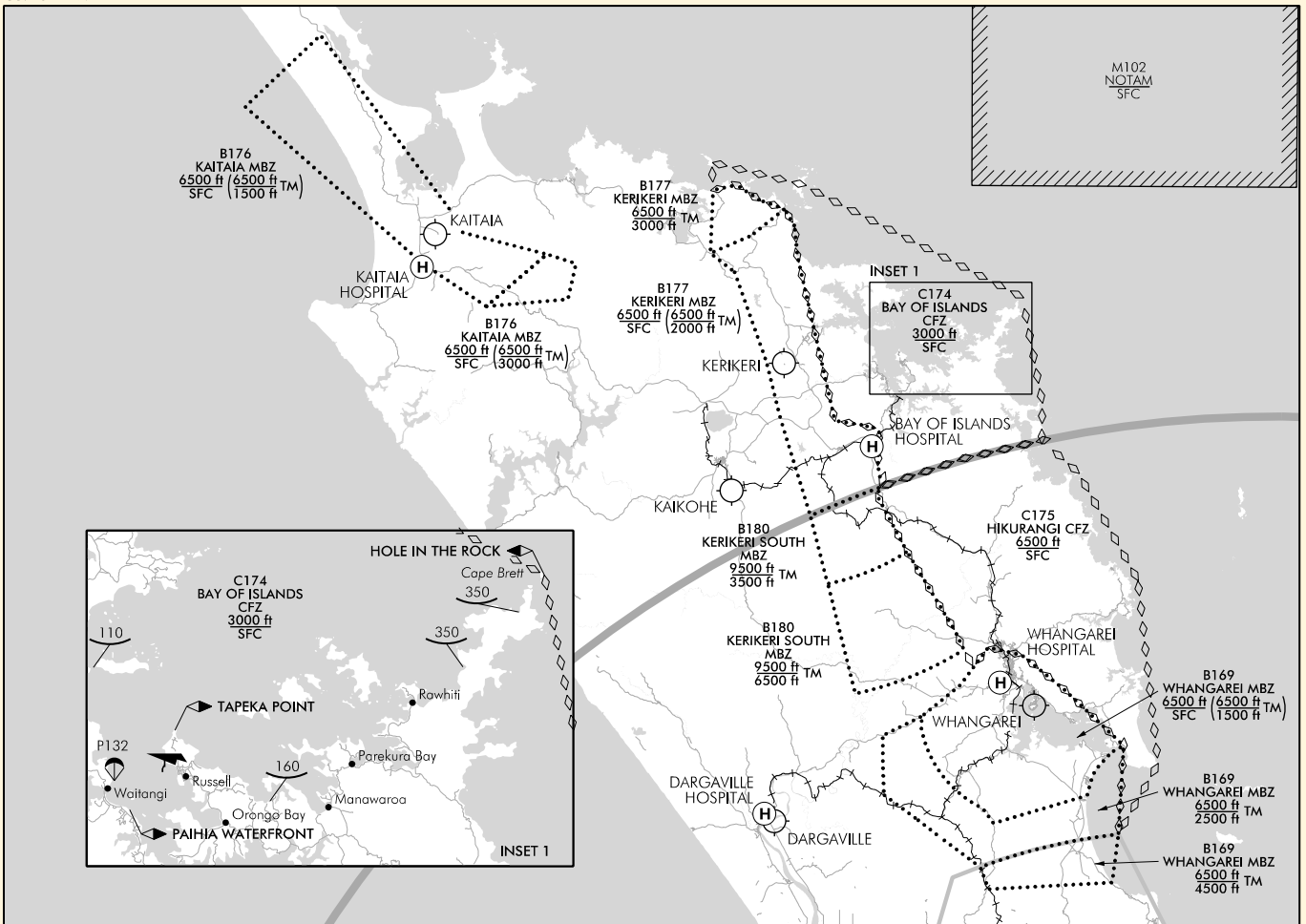
Get Your New Charts

If you haven't already, make sure you get a new set of visual navigation charts because there are so many changes.

You can order charts from the GroupEAD (Airways) web site, www.groupead.co.nz.



Continued over >>



Northland airspace changes, including the new MBZ, NZB180 Kerikeri South.

» Continued from previous page

Amendment to Kaitaia MBZ

To facilitate RNAV procedures, the re-coded NZB176 *Kaitaia* (surface to 6500 ft) has been amended to encompass all of the Kaitaia RNAV (GNSS) RWY 30 approach from the initial fix at PERIA waypoint.

The lower level of transponder mandatory designated airspace is stepped at approximately 5 NM SE of Kaitaia, from 1500 ft to 3000 ft, to ensure the lower limit is at least 1500 ft agl.

Amendment to Bay of Islands CFZ

The Bay of Islands CFZ northern boundary has been extended in conjunction with the extension of the Kerikeri MBZ. The upper limit remains 3000 ft amsl.

Amendments Whangarei MBZ

Now coded NZB169, the Whangarei MBZ has been split into three sectors. These have stepped lower limits: surface, 2500 ft, and 4500 ft. The upper limit remains at 6500 ft.

New CFZ North of Whangarei

A new CFZ, NZC175 *Hikurangi*, has been established, surface to 6500 ft. It uses the same frequency as the Whangarei MBZ – 118.6 MHz.

The western boundary has been aligned to the eastern boundary of the new Kerikeri South MBZ. This is to avoid any potential confusion between the two frequencies.

Other changes include the establishment of new Bay of Islands VFR reporting points at Paihia Waterfront, Hole in the Rock, and Tapeka Point.

instrument flight paths. Airspace not required as Class G has been reclassified.

New VFR arrival and departure procedures have been developed for Hamilton and Tauranga.

Hamilton Controlled Airspace Redesign

There's new controlled airspace above Hamilton CTR, lower limit 2000 ft.

The boundary of CTA/D, lower limit 2500 ft, in the vicinity of Mt Pirongia has been amended to contain new PBN procedures.

Transit lanes have also been amended to align with the new CTR boundaries.

Establishment of New CFZs Around Hamilton CTR

Two new CFZs have been established – Raglan (123.75 MHz) and Morrinsville (123.25 MHz). Both extend from the surface to lower level controlled airspace.

Note that NZB273 *Matamata* will remain on the discrete frequency 122.25 MHz.



The introduction of new Performance Based Navigation (PBN) procedures at Hamilton, Tauranga, and Rotorua aerodromes triggered a review of the existing controlled airspace. Control zone sizes have been reduced to a minimum while still protecting

Tauranga Controlled Airspace

Redesign

A new CTA above Tauranga CTR has been created, lower limit 1500 ft, to contain new PBN procedures.

The existing CTA/D airspace south-west of Tauranga CTR, lower limit 2500 ft, has been extended to contain new PBN procedures.

Three new VRPs have been created outside the amended Tauranga CTR: Kaituna Bridge, Blue Gum Bay, and East Junction.

Mount Maunganui GAA (NZG271) has been disestablished as it's no longer within controlled airspace.

New CFZ around Tauranga CTR

The CFZ NZC271 *Harbour* has been created. This surrounds the Tauranga CTR, which includes the south-eastern portion of the Peninsula CFZ.

ROTORUA CONTROLLED AIRSPACE REDESIGN

Boundaries of existing Rotorua CTAs have been amended so they align with the new Tauranga CTAs.

A new VRP, Haparangi, has been established in the south of the Rotorua CTR.

Other changes include:

- » Amendment to NZG258 *Te Puke*
- » The upper limit of NZG258 has been raised to 4500 ft. Amendments to the Tauranga CTA boundaries place most of NZG258 outside controlled airspace.
- » NZG458 *Paeroa Range* has been extended.
- » The western boundary of NZB477 *Tarawera* is amended to align with the amended Rotorua CTR boundary.

MANAWATU AIRSPACE REVIEW

Review of Ohakea CTR boundaries

The Ohakea CTR northern boundary has been amended. Consequentially, the military operating area NZM310 has now been recoded NZM 309, with the boundary amended to align with the CTR boundary.

This change will allow for more routing options for VFR aircraft operating north of Ohakea CTR outside controlled airspace.

Amendment to Whanganui MBZ Boundaries

The eastern boundary of the Whanganui MBZ (recoded NZB375) is now aligned

with the north-western NZA335 Ohakea CTR/CTA boundary. The upper level has been raised to the lower level of controlled airspace, 3500 ft.

The western boundary has been extended to include DUDED hold. The northern boundary has been extended to Upokongaro.

NZB374 is transponder mandatory from 1500 to 3500 ft.

New NZC379 River CFZ

A new CFZ, River, has been established around the Whanganui MBZ, on the same frequency as the MBZ. The upper limit is the lower level of controlled airspace.

The eastern boundary of the Taranaki CFZ has been amended to align with the boundary of River CFZ.

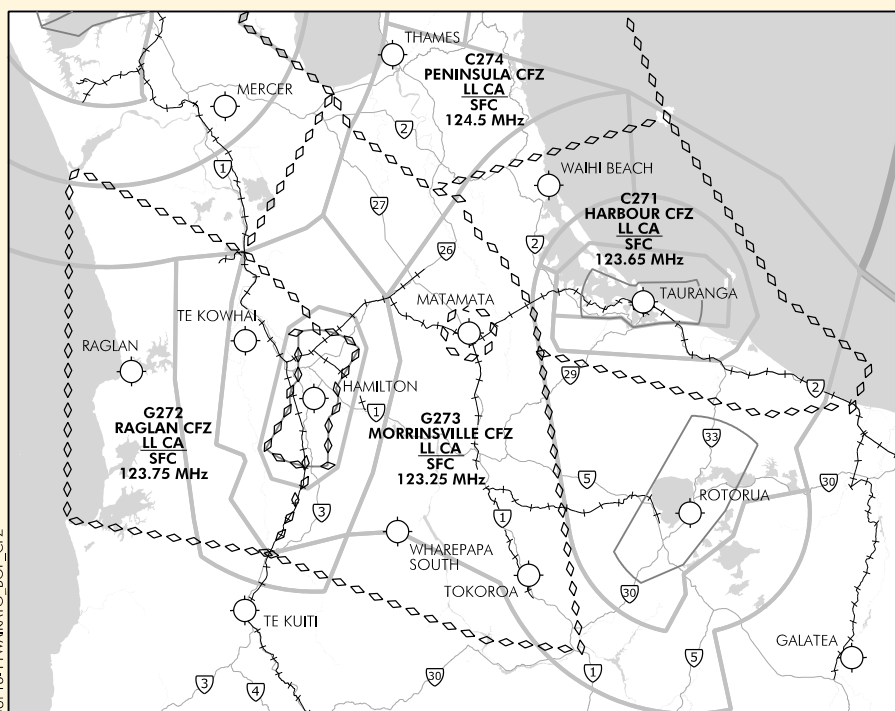
Feilding CFZ Replaced

Feilding CFZ has been disestablished and replaced by a new CFZ, Rangitikei, which is significantly bigger. Rangitikei's upper limit is the lower level of controlled airspace.

The CFZ now extends to the north along the Ohakea boundary line to include busy VFR training areas. The western boundary is aligned with the Whanganui MBZ and the new River CFZ.

Other Changes Include:

- » Designation of a new GAA NZG551 *Puketoi*, 4500 ft – 6500 ft, active during daylight hours by ATC approval.
- » The GAA will enable extended cross country hang glider and paraglider flights when weather conditions are favourable.
- » Designation of new controlled airspace, 5500 ft to 9500 ft, between Levin and Eketahuna
- » This new CTA will provide containment for new PBN procedures, and existing instrument flight paths, tracking to the south from Palmerston North. The CTA will also contain a new holding pattern to the south-east of Ohakea.
- » As gliding operations will be ceasing from Paraparaumu aerodrome in 2016, NZG673 *Kapiti* has been disestablished.



Hamilton, Tauranga, and Rotorua control zones have been reduced in size.

Continued over >>

QUEENSTOWN CHANGES

Queenstown controlled airspace was comprehensively redesigned in 2012 and new PBN procedures were implemented.

The change in airspace classification from Class D to Class C means separation will now be provided between IFR and VFR flights. There have also been minor airspace, and VFR departure and arrival procedure changes.

The Crown Terrace general aviation area has been recoded NZG752 to provide suitable containment (0.5 NM buffer) of the RWY 23 RNP-AR approach. The NZG753 southern boundary has been moved to follow the ridgeline.

In addition, the north-eastern boundary of NZG758 *Arrow Junction* has been extended.

Amendments to Upper Level CTA West of Queenstown

The boundary of NZA949 (CTA/C, lower limit FL175) and NZA946 (CTA/C, lower limit FL285) has been amended by 15 NM southwards to enable area surveillance controllers to vector trans-Tasman IFR arrivals and departures for Queenstown. This will provide a more efficient flow of traffic.

OTHER AIRSPACE CHANGES

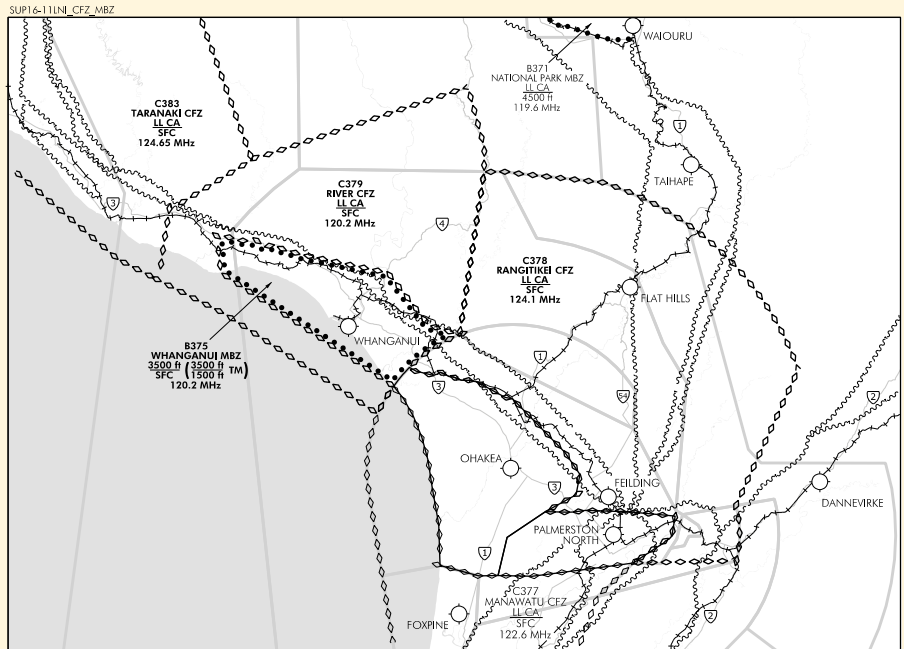
Amendment to Auckland CTR Boundaries

One of the first areas reviewed under the 2014 to 2016 Airspace Review Plan was the Auckland region airspace. One of the aims of the review was to assess if existing controlled airspace remained fit for purpose.

Subsequently, the size of the CTR has been reduced. The existing VRPs on the Auckland CTR boundary will remain, but are now outside the CTR.

Amendments to Queenstown CTA, Invercargill CTA, and Invercargill CTR

The size of the Invercargill CTR has been reduced and amendments have been



A new CFZ, NZC379 *River*, has been created in the Manawatu region.

made to enroute controlled airspace between Queenstown and Invercargill aerodromes. In addition, the terminal CTAs surrounding Invercargill aerodrome have been amended.

Amendment to Nelson CTA

New controlled airspace between Mapua, Upper Moutere, and Kina has been established – lower limit 3500 ft.

The Nelson VOR/DME will be relocated on 10 November 2016. Due to the move, new instrument approach and departure procedures have been developed, and airspace has been revised to contain them.

New Permanent Danger Area at Middlemarch

A new permanent danger area NZD921 *Middlemarch*, surface to 8700 ft, active by NOTAM, has been created. It lies midway between Dunedin and Alexandra.

This has been established to warn pilots of the potential hazard of military live firing exercises. It's anticipated that it will be active two to three times per year, for no more than two to three days at a time.

Amendment to CTA boundary South of New Plymouth

This change is to contain the New Plymouth SOUTH THREE instrument departure track.

The western boundary of NZA838, Christchurch CTA/C above 9500 ft amsl, will be moved further west by approximately 20 NM. ■

New Products

The New Zealand Airspace GAP booklet has been revised, and now includes a section for drone (RPAS) users. Email info@caa.govt.nz for your copy.



Q300s at Uncontrolled Aerodromes

With Air New Zealand's Q300s now flying to more uncontrolled aerodromes, this is a heads-up to general aviation pilots about how to co-exist with them.

From September 2016, the Beech 1900 of Eagle Airways will be withdrawn from Air New Zealand service.

Most of the ports that Eagle served are now being served by Air Nelson and its fleet of 23 Bombardier Q300s.

Those ports include the uncontrolled aerodromes of Kerikeri, Whangarei, Taupo, Paraparaumu, Hokitika, and Timaru, all with MBZs. They will also conduct the occasional charter flight to other places.

Vector spoke to Andrew Aldridge, Air Nelson Safety Manager, and Steve Scott, Air Nelson Technical Manager, to find out more about how the Q300 is operated.

Vector: What is different about the Q300?

Steve: It's fitted with dual integrated Flight Management Systems that give the Q300 the ability to do GPS-guided (RNAV) instrument approaches. We also have automated vertical navigation guidance that allows us to plan and follow a vertical flight path. Of course, we also carry the VNCs related to the aerodromes we visit.

Vector: How do you operate at uncontrolled aerodromes?

Andrew: We have a policy of predictive tracking, which means that the aircraft will always follow the published instrument approach for the duty runway in all weather conditions. Local users can find out from the AIP where the instrument tracks go, or ask someone local who is IFR rated, or just check out

the direction we come from. We fly the approaches with vertical guidance enabled which provides predictable heights and allows the crew more time to interact with local traffic.

Steve: Within MBZs we operate the Q300 at a maximum of 160 kts. If the traffic situation is unresolved or complex, we encourage our crews to slow down or enter a hold.

Vector: How do you know what traffic is operating around uncontrolled aerodromes?

Andrew: We make radio calls well ahead of entering an MBZ to allow us to build a picture of the local situation, and we keep that radio dialogue going. To assist us with sighting local traffic, the Q300 is fitted with an airborne collision avoidance system (ACAS). For ACAS to work most effectively, local traffic must be using a Mode C transponder. If a GA pilot has a Mode C transponder, using it when the Q300s are operating makes a huge difference to our ability to identify and avoid local traffic.

Vector: What advice would you give to GA pilots out flying when the Q300 arrives?

Andrew: If you have a transponder, make sure it's operating. Otherwise, make sure you're on the correct frequency for the airspace you are in, and make the required calls. Safety relies on us all doing the right thing.

Steve: Also look out for the Q300 pulsing landing lights on the wings. But don't bank on the published timetables. You'll find

Continued over >>



Photo courtesy of Air New Zealand.

Air New Zealand is bringing its fleet of Q300s to some uncontrolled aerodromes.

the Q300 can operate well outside the normal scheduled times as we can be delayed for operational reasons.

Vector: How should pilots communicate with the Q300?

Andrew: First of all, don't be scared to make contact with the aircraft. We will make and accept calls in plain English if needed to understand the situation. The Q300 pilots will often provide position reports as a range and bearing. GA pilots should also remember that they are possibly more familiar with the nuances of the local area than many of the Q300 pilots are, so instead of saying 'overhead Carter's Ford', try saying something like 'overhead Carter's Ford, 10 NE of the field'. If you don't understand where the Q300 is or what its intentions are, please don't stay quiet.

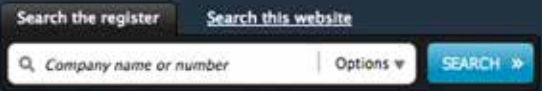
Vector: What happens if a GA pilot thinks that they're in conflict with the Q300?

Andrew: We know that the Q300 has no special priority in uncontrolled airspace, and the normal see and avoid rules apply to all conflicts. If required, we will adjust the flight path or wait for you to finish and clear the area. The key thing is to communicate early and make yourself visible, ideally with a transponder. As a commercial airline operator, we have a very low appetite for taking risks, so you are quite likely to find that the Q300 will break off an approach if there is an unresolved conflict situation.

Steve: All our pilots can remember what it is like to be learning to fly and all have had previous GA experience. At heart, we are all aircraft enthusiasts. ■



COMPANIES OFFICE



Your Company Name is Part of Your Certificate

As an air operator you need to be aware that your certificate is issued to your company as registered with the Companies Office. If you wish to change its name, or sell your company, you need to know the implications for your operator certificate.

"The certificate is issued to the company," says Jeanette Lusty, the CAA's Acting Manager, Special Flight Operations and Recreational Aviation.

"If a company wants to change its name, it's usually pretty straightforward if the company itself doesn't change. The CAA just needs to be notified of the change within that company and there are forms for such amendments."

But if a new company is formed, the situation is quite different.

"If a new company number is issued by the Companies Office, that changes our records, and it becomes a new certification."

Jeanette says a recent case highlights there is some confusion.

"We had a company that wanted to start a whole new company for various reasons. A new company is a new legal entity. They didn't realise they needed to apply for a new air operator certificate (AOC).

"Even if the new company has the same shareholders as the old one, it's a different legal entity once it has been issued with

a new Companies Office number. If a company name is used on an aircraft certificate of registration, that will also need to be re-issued.

"There's a good reason for this. Someone could buy a company with an AOC and circumvent the certification process. We need to be confident that the people involved are fit and proper, and resources are available. We have to ensure the integrity of the AOC.

"Also remember, that in cases where your Senior Persons change, you need to go through a process for that with the CAA," says Jeanette.

This will not affect sole traders or partnerships – only registered companies. Registered companies sometimes use "trading as" for a branding name – these will not be affected *unless* they are used on your certificate or are in your exposition.

For more information, see "Keeping your Exposition Relevant" in the May/June 2013 *Vector*. ■

NZALPA Recognises Mark Everitt

For the first time, the New Zealand Air Line Pilots' Association (NZALPA) has presented the Jim Collins Memorial Award to a government official. That speaks volumes for Mark's Everitt's remarkable contribution to aviation safety and security.

The Jim Collins Memorial Award recognises a significant contribution to aviation safety. *Vector* caught up with with this year's awardee, Mark Everitt.

It didn't take long to uncover his deep passion for aviation safety and security. His philosophy, however, is a rather simple one. "My focus is people, I like building strong relationships," says Mark.

This philosophy has been a key driver behind his success story, evidenced by the praises of many he's worked with.

In 1993, Mark began his role as General Manager of the Aviation Security Service (Avsec) with a staff of 80. During his two decade tenure, Mark's team grew to more than 800 in number, largely as a result of the September 11 attacks.

Avsec also gained international recognition, becoming the world's first aviation security service to achieve ISO 9001:2008 certification.

Mark's other achievements include the creation of the ICAO Training Centre in Auckland, the inception of the Explosive Detector Dog unit, and in a previous position, the establishment of the Police Air Wing, Air Support 'Eagle' units. Recently, he's been working on developing safety standards with Pacific island nations through the Pacific Aviation Safety Office.

Looking back on his time as GM Avsec, Mark still marvels at the amount of work that has gone on behind the scenes.

"Every time I walk through a security gate or access doors at a security-designated aerodrome, I think to myself, 'how much energy did that take?'"

The Auckland Airport international terminal refurbishment was one of his bigger projects.

"We started with a Ministry of Works 1970s design, where security wasn't even taken into account. At the time, arriving and departing passengers were able to mingle after security at Auckland Airport. In terms of ICAO requirements, that's an absolute no-no."

The refit was a huge project, about 120 million dollars, and that was the cheap option – the alternative was a whole new terminal. We successfully separated arriving and departing passengers with a glass walkway, and adding a second level. At the same time, we put in a hold-stow baggage screening system."

Pictured: Mark Everitt with the Jim Collins Memorial Award, which recognises a significant contribution to aviation safety.

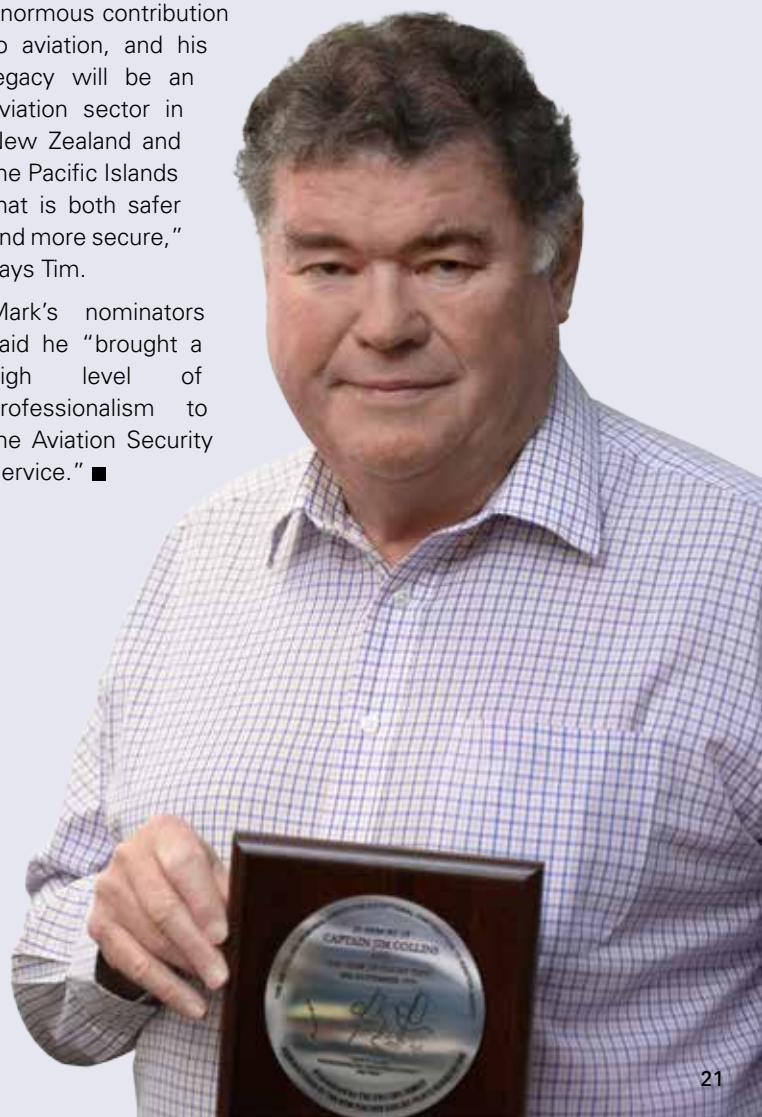
The role presented its fair share of challenges. Mark spearheaded New Zealand's aviation security operational response to a number of global events, including for example, the 9/11 attacks in the United States.

"The morning after 9/11, we rolled out domestic screening. It was a huge shift in the travelling public's perception of aviation security. Changing the attitude of eight million passengers was a challenge. Most of them hadn't experienced that level of security intrusion, except for the passengers who had travelled internationally," says Mark.

NZALPA President, Tim Robinson, says that ALPA has had a great relationship with Mark over the years.

"He has made an enormous contribution to aviation, and his legacy will be an aviation sector in New Zealand and the Pacific Islands that is both safer and more secure," says Tim.

Mark's nominators said he "brought a high level of professionalism to the Aviation Security Service." ■



Not Necessarily **Twice**

When one of two engines dies after takeoff, and an unseasoned pilot makes a couple of crucial errors, it takes all the experience of the training pilot to get everyone back down safely.

In March 2012 I was conducting command training with a new line pilot in a twin engine Piper Aztec aircraft on scheduled IFR passenger services.

It was a mild morning with a 6 am sign-on. The first sector from Gisborne to Rotorua was uneventful. The airport at Rotorua is some 950 ft amsl and surrounded by high terrain and lakes. The second sector was from Rotorua to Hamilton with the trainee pilot in the left seat, me in the right and two passengers in the rear.

We lined up on runway 18 at Rotorua about 8 am and began the takeoff roll. All indications during the takeoff were normal.

Once airborne the landing gear was retracted. Part way through the gear retraction at a height of approximately 150 ft agl the left engine failed.

The trainee pilot immediately identified which engine had failed, and began her initial response.

With the left engine shut down and secured, we had no hydraulics... We were going to have to manually lower the landing gear.

However, when she got to the pitch lever for the propeller, she did a touch check rather than actually feathering the propeller.

I saw this and immediately feathered the propeller as soon as she had removed her hand from the lever.

I did a MAYDAY call to the tower advising that we had suffered an engine failure.

Typically, the Aztec will fly very well on one engine, achieving around 400 ft per minute climb. However, we were still accelerating between the red line and blue line. Red line indicates V_{MCA} , or minimum air speed that control of the aircraft can be maintained with one engine on full power and the other inoperative; blue line is best rate of climb airspeed with one engine operating.

The high angle of attack on takeoff, coupled with the initial delay in feathering the propeller, resulted in the propeller taking some time to feather as the propeller RPM was low.

There were houses and trees directly ahead of us. The trainee pilot pulled back on the controls to try to climb over them.

At that point I took control of the aircraft as our airspeed was now within 5–10 knots of V_{MCA} and decaying. We were descending.

I lowered the nose to try to gain airspeed, and began manoeuvring around the trees and houses, aiming towards Lake Rotorua.

I was convinced, however, that we were going to hit the ground before we reached the lake. In my mind I was thinking 'better to impact under control than out of control'.

It was an extremely anxious time to have maximum power on the remaining engine, correct engine-out technique applied, and yet to still be descending.

As I was manoeuvring, the tops of the trees were above us, and I was thinking of what actions I would take immediately prior to impact. We were so low, the air traffic controller had lost sight of the aircraft below the tree line, and we were not showing up on radar. He transmitted, "confirm that you can return to the airfield," to which I replied, "I don't know".

At this stage, we were only about 40 feet above the ground.

Finally, the aircraft stopped descending and slowly started to accelerate. Once over the lake, and now starting to slowly climb, I relaxed somewhat, believing we were going to make it.

There was a floatplane circling over the top of us in case we ditched.

I asked the trainee to explain to the passengers that the aircraft will fly on one engine, and that we were returning to land at Rotorua. I asked her to remind them to put on life jackets and to ensure their seat belts were secure.

I circled wide around Lake Rotorua in an attempt to gain more altitude, as there was some low terrain that we would have to pass over as we came into land.

The next issue was that, with the left engine shut down and secured, we had no hydraulics. That meant no flaps or undercarriage. We were going to have to manually lower the

as Safe



A twin-engine aircraft, such as this Seneca III, is not always twice as safe as a single engine aircraft.

landing gear. I explained to the trainee that we had only one attempt at this, and that I would select the gear down and would tell her when to start pumping the manual hydraulic pump.

We managed to attain only about 300 ft agl by the time we lined up on final. But we worked well as a team and got three green lights on the undercarriage before landing safely back on runway 18.

We taxied off the runway escorted by airport fire rescue, completed our checklist, and shut down.

I escorted the passengers into the terminal and explained to them in more detail about what I thought had happened. They did say that they had been concerned that the wingtip was going to hit the ground at one point, because we were so low.

I returned to the aircraft; checking the fuel quantity and doing a fuel drain told me we had plenty of fuel and it was free of contaminants.

After dealing with the passengers and the aircraft, the trainee and I went up to the control tower.

The controller said that he'd completely lost sight of us for a time and had feared the worst.

It's fair to say the three of us were pretty shaken, but a coffee and a good chat helped calm our rattled nerves.

The engineers traced the source of the crisis to the fuel control unit (FCU), which contained a fine orange sludge that had built up and corroded the inside of the unit. The aircraft had been imported from Australia and it was thought that fine dirt had got into the fuel system from drum refuelling.

Continued over >>

Photo: istockphoto.com/nigphoto

The FCU on the right engine was found to be in a similar state. During the debrief, I asked the trainee why she had not feathered the propeller, initially doing only a touch check. She explained she thought we were doing a simulated exercise, and therefore she did only the touch check.

I explained that we never do simulated engine failures with fare-paying passengers, and certainly not at that height.

In a twin, correct speed control is everything to maintain control.

She also explained she'd pulled back on the control column, approaching the houses, because she didn't want to hit them or the nearby trees.

I described for her the relationship between airspeed, and controllability, and stress. The reason the aircraft was not performing was because we were still accelerating at the time

of the failure, and on the back of the drag curve, whereas during simulated emergency training, the aircraft is already at climb or cruise speeds.

In a twin, correct speed control is everything to maintain control.

On the Aztec, the left engine is the critical engine for two reasons. Firstly, due to the direction of the propeller's rotation and the offset forces involved in that, and secondly, the engine-driven hydraulic pump is connected to the left engine.

The flaps and undercarriage on the Aztec are both hydraulic. So a consequence of a failure of the left engine is the loss of the engine-driven hydraulic pump.

This was a particularly sobering experience. The company had come extremely close to losing an aircraft and possibly, four lives.

But I believe that my hours of multi-engine instructing and flight examining had set me up well to deal with this emergency, and that had an inexperienced pilot been involved, the outcome could well have been very different.

Twin engine aircraft are not necessarily twice as safe. In the wrong hands, they can be twice as dangerous. ■

Installing Avionics – What’s Acceptable Technical Data?

The Advisory Circular that provides acceptable technical data for some avionics modifications which are not classified major, has been updated to ensure greater accountability.

A C43-14 *Avionics, Installations – Acceptable Technical Data* has been around for some years, but its latest revision has been designed to make it more streamlined.

The Advisory Circular provides the acceptable technical data people need when they are installing selected avionics equipment to specific aircraft types that is not deemed major, without going through a lengthy process. It applies to unpressurised aircraft of less than 5700 kg MCTOW and less than 10 passenger seats.

“The AC is an important tool for simple installations instead of having to apply for a major modification every time you want to do something small,” says Danni Higgins, from Avionics Hawke’s Bay.

But the CAA’s Team Leader Avionics, Andrew Rooney, says some people haven’t been using it properly.

“We’ve gone through and cleaned it up, we’ve taken out some of the repetition and introduced a new form (CAA043-01) that’s tailored just for this.”

He says none of the technical requirements have changed but it’s been simplified to make sure people use it correctly.

“Some people are getting confused thinking we’ve introduced all these new requirements, where in actual fact, they’ve always been there. Now we’ve got a mechanism and a form that is fit for purpose.

“But what we are insisting on is that when people use this AC, they use it properly and in its entirety.

“We were finding that a lot of people were just writing in the aircraft logbook that they had installed so-and-so in accordance with AC43-14. There was no paperwork, or we got the paperwork and it would just say ‘in accordance with ...’ and that would be it.”

Andrew says the first step is to determine your eligibility to use AC43-14.

“Read the whole AC and the entire applicable appendix. Follow all the requirements, don’t just pick parts out of it. Update the aircraft documentation, and submit the form back to the avionics team in the Aircraft Certification Unit. We will be able to make sure the requirements have been met.”



Photo courtesy of Graeme Gale/HeliOrago NZ.

He says it’s about tidying up the use of AC43-14 and making sure any modifications are recorded.

“When the other CAA units are doing their audits and see entries in the logbook where it’s got ‘used AC43-14’, they can come back to us and say ‘hey have you seen this?’ and we’ll have the form saved here.”

Danni Higgins says they do see cases of equipment being installed incorrectly.

“For instance, we’ll investigate a radio installation, and we look behind the panel and you see the wires are not in accordance with the installation instructions from the manufacturer. None of this is in accordance with any AC, any installation instruction, any rule in any way, shape, or form.

“It’s quite nice to know that it is actually being cracked down on and that if you’re going to use this AC then you better prove that you’ve got the correct installation, and so forth.”

Andrew Rooney says no one should be fitting items to an aircraft that are unsafe, not fit for purpose, or fitting them in an incorrect manner.

“That has always been the case, it’s just that people have moved away from following this in total.” ■

Take the Pressure Down

Pilots experience pressures from all angles but how many bad decisions stem from commercial burdens? And what can you do to make sure financial concerns don't compromise safety?

CAA Safety Investigator Matt Harris says it's difficult to quantify how much of a role commercial pressures play in accidents and incidents but it does exist.

"We've always had a gut feeling but there hasn't been hard evidence to say this or that accident was caused because of commercial tension. It's one of those contributing factors underlying an event."

The CAA is investigating the light helicopter industry, and Matt says one of the themes coming through is that commercial pressures do have an influence.

Jeanette Lusty, the CAA's Acting Manager, Special Flight Operations and Recreational Aviation, suspects it happens less than it did in the past.

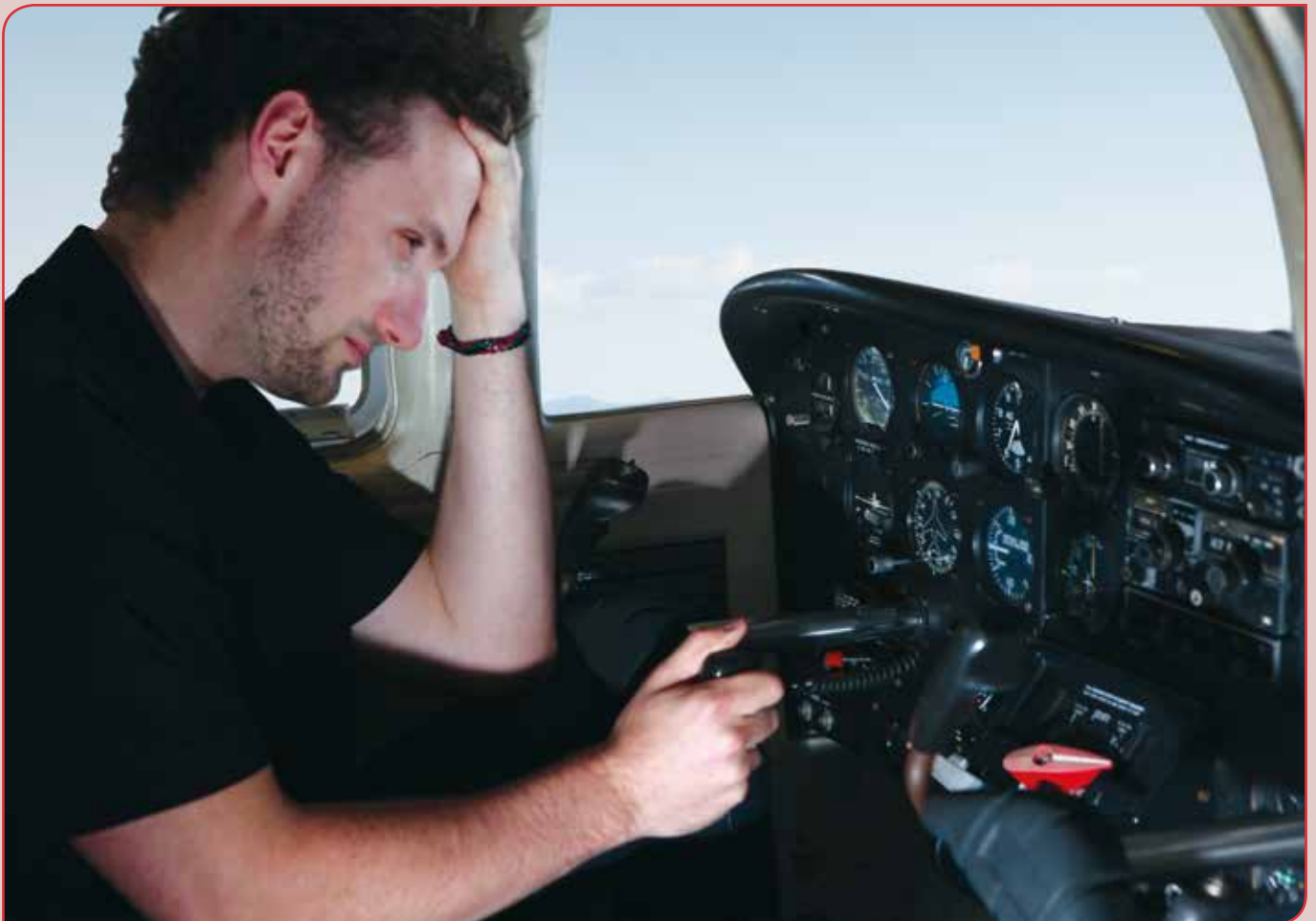
"Some employers will pressure their pilots to do the job because of the income. Pilots that don't stand up for the right to make their own decisions in the cockpit are headed for trouble. And employers that take the decisions away from the pilot are also creating a massive safety issue."

Stop Pressuring Yourself

However, it's not necessarily the employer putting the squeeze on.

A lot of it is perceived pressure or self-induced pressure, says Marty Gambrell, the CAA's Flight Operations Inspector for Helicopters.

"Some pilots think the boss wants them to carry out the operation, get the job done. But in actual fact the boss would



often be more than happy for them to pull the pin and come home if the weather's bad."

Marty says some pilots worry that turning down jobs might stifle their progress. "You sometimes get a lot of competitiveness within a company, pilots trying to build hours, trying to outdo each other."

Mark Woodhouse from Waypoints Aviation has been a flight examiner for many years and produces flight training manuals.

"The message I hear is by far the most pressure is self-induced and perceived rather than actual pressure by the operator."

Do pilots need to temper their egos from time to time?

"I don't think that message, especially for young males, is a bad one but they're pretty much the exception. People like that get identified reasonably early and it's a very small industry in this country," says Mark.

Saying No Is Okay

CAA Safety Investigator, Dan Foley, says having the confidence to say no is important.

"Pilots in their first commercial job would probably be more susceptible to pressures than those who've been around a while and have enough experience to stand up and say 'no, I'm not happy with what's taking place'."

"It can be cut-throat in your first commercial job, where you're trying to build hours and get yourself established – it's tricky."

But the CEO of Ardmore Flying School in Auckland, Mike Newman, believes the next generation of pilots is more savvy.

"We certainly find it with young people we talk to, they are quite happy to stand up and speak their mind when they are uncomfortable with something".

He thinks the whole industry has probably evolved a lot.

"As we say, crashing planes is bad business. I think the whole idea of commercial pressure is less of an issue in the industry nowadays. The industry people I speak to firmly promote the safety first attitude."

Risk Areas

Commercial pressure and competition are identified in the CAA's Part 135 sector risk profile.

Dan Foley says the boom in tourist numbers has created the potential for competition between small operators.

"Financial pressure could lead to undercutting between different operators. To combat this, I would like to see operators working collectively, setting standards, and making sure operators adhere to them."

But Dan believes the aviation system in New Zealand is becoming more mature.

John Sinclair, the Executive Officer of the Helicopter Association and the Agricultural Aviation Association agrees.

"There's no question the industry is more professional."

John says sometimes it's the end user who applies the pressure.

"Farmers put a lot of pressure on pilots because they want product on, but the pilots can get hamstrung by the weather. It can go on sometimes for days and days so there might be a dozen farmers on the list."

He says the pressure is insidious.

"That sometimes puts financial pressure on the business owner and that in turn can put pressure on pilots. So the owner has to think carefully about the effect that disclosing financial information will have on the pilot."

John says pilots can feel pressure from impatient passengers.

"The heli-ski season is a busy season, highly competitive and that in itself brings pressures."

CAA Safety Investigator Colin Grounell recalls a fatal accident in Taranaki in 2008, involving a topdressing pilot.

One of the conclusions of the accident report found the aircraft was probably overloaded for the prevailing environmental conditions.

"It was coming up to Christmas, and the pilot was due to go on leave the next day for the start of an extended holiday. He was keen to finish the task at this particular farm so he could go away with a clean slate."

"Additional pressure came from a poor weather forecast for the next day."

Colin says back then it was quite common in the topdressing industry for pilots to not get paid until the job was completed but that situation has improved since then.

How Do You Respond?

John Sinclair says the way a pilot responds to pressure will dictate the outcome.

"Some people are conditioned and can put that pressure to one side, others will get wound up to the extent that their decision-making is compromised."

Mark Woodhouse says he has a few mantras he tries to live by for safe flying.

"The later I am, the slower I go."

"Because if you ever want to make yourself famous it will be by rushing."

Jeannette Lusty, who's had management roles in the helicopter industry, used to be very clear with her staff.

"If my guys called me and said 'I'm not liking the look of this' I would say 'you should have already turned around and got out of there'."

"Even if you have to stay the night somewhere, it's still a much better option." ■

Stay Clear of Marsden Point

The people who work at the country's only oil refinery say aircraft busting the restricted airspace above them are flying into possible catastrophe.

Open the C1 Visual Navigation Chart, and you'll find at about 35°50'S and 174°30'E, airspace designated R100.

That means no aircraft can fly lower than 3500 ft amsl within a one kilometre radius centred on the tallest structure in the restricted area – a 120 m high four-chimney flue – at Marsden Point oil refinery.

Despite that, four or five aircraft a year, particularly in the summer, stray into the restricted area, flying – according to refinery workers – between 2000 and 500 ft amsl.

Damian Southorn, the Emergency Services and Incident Response Manager for Refining NZ – the Marsden Point operator – suspects the pilots want a closer look at the refinery itself, or the surrounding area.

"The harbour is very picturesque, the coastline beautiful, Mt Manaia is close by and then there's the working port. There's a lot to see from an aircraft.

"But the restriction is there for safety. The danger to overhead aircraft could be catastrophic, should the plant need to quickly depressurise, with a sudden release of gas from the flare stack.

"We also have thermals surrounding the plant, generated by the fans used to cool the hot pipes.

"We're making fuel here. It's an inherently hazardous activity that relies on a controlled work environment with good safety procedures. But there's not much we can do about someone flying in breach of the restriction."

The CAA's Regulatory Investigations Unit is currently looking at an incident where an aircraft allegedly flew low, across the refinery, close to the 90 m flare stack.

The company's External Affairs Manager, Greg McNeill, says not

only are the lives of the 550 refinery workers put at risk each time an aircraft breaches the restricted airspace, it also potentially puts the local community and the wider economy at risk.

"Marsden Point is a critical, strategic piece of energy infrastructure. It produces all the country's jet fuel, all its fuel oil for shipping, nearly 80 per cent of its diesel, and about half of its petrol," he says.

Damian Southorn says Air New Zealand, with flights in and out every day, the local helicopter rescue service, local commercial operators and most local recreational aircraft all keep out of the restricted area.

"But visitors to the area might not be so aware of the restriction nor the reason for it. Generally it's recreational single-engine aircraft, helicopters, and microlights.

"If they want the best view of the refinery, it's actually at about 3500 ft and about one and a half kilometres away. It's a better look than from right over the top."

Damian says if a pilot has to fly within the restricted area, they must apply for authorization from Refining NZ.

"A local UAV operator who has to fly regularly within the restricted airspace follows the rules to a 'T'," he says.

"They do aerial survey work for Northport (the port company) and always apply in writing at least seven days in advance, further confirming on the day prior to flying operations.

"Notification of the proposed flight is then disseminated through the refinery, with authorization granted on the basis that the UAV operator will adhere to a strict list of caveats.

"So authorization can be sought by a pilot or operator wanting to fly in the R100 airspace but there is a process.

"What they certainly cannot do, is just wander on through." ■



Maintenance Controller Course

Are you interested in the planning and direction of maintenance? Then the Wellington Maintenance Controller Course could be for you.

Wellington – 26 to 27 October

Civil Aviation Authority of New Zealand

Level 15, 55 Featherston Street, Wellington (opposite the train station).

Register Online

You can register online for a Maintenance Controller Course. An enrolment form is on the CAA web site, www.caa.govt.nz, "Seminars and Courses".

Your place on the course is not guaranteed until you receive a confirmation letter and payment is made in full.

Enrolment closes three weeks before the course date to allow for training notes to be posted and study to be completed.

New Products

How to Navigate the Rules has been updated to include new rules underpinning areas of major growth in aviation, such as Part 100 *Safety Management*, and Part 102 *Unmanned Aircraft Operator Certification*.

The booklet includes information on emergency rules, advisory circulars and airworthiness directives, as well as what is involved in seeking an exemption to a rule requirement.

It outlines the development of a rule and how you can get involved in that.

A fold-out guide to the rules, replacing the previous booklet's now-too-small 'whizz wheel' is at the back.

For a free copy of *How to Navigate the Rules*, email info@caa.govt.nz.



How to Get Aviation Publications

AIP New Zealand

AIP New Zealand is available free on the Internet, www.aip.net.nz. Printed copies of Vols 1 to 4 and all aeronautical charts can be purchased from Aeronautical Information Management (a division of Airways New Zealand) on 0800 500 045, or their web site, www.aipshop.co.nz.

Pilot and Aircraft Logbooks

These can be obtained from your training organisation, or 0800 GET RULES (0800 438 785).

Rules, Advisory Circulars (ACs), Airworthiness Directives

These are available free from the CAA web site. Printed copies can be purchased from 0800 GET RULES (0800 438 785).

Planning an Aviation Event?

If you are planning any aviation event, the details should be published in an AIP Supplement to warn pilots of the activity. For Supplement requests, email the CAA: aero@caa.govt.nz.

To allow for processing, the CAA needs to be notified **at least one week** before the GroupEAD (Airways) published cut-off date.

Applying to the CAA for an aviation event under Part 91 does not include applying for an AIP Supplement – the two applications must be made separately. For further information on aviation events, see AC91-1.

CAA Cut-off Date	GroupEAD (Airways) Cut-off Date	Effective Date
26 Sep 2016	3 Oct 2016	8 Dec 2016
12 Oct 2016	19 Oct 2016	5 Jan 2017
9 Nov 2016	16 Nov 2016	2 Feb 2017

See www.caa.govt.nz/aip to view the AIP cut-off dates for 2016/17.

Aviation Safety Advisers

Contact our Aviation Safety Advisers for information and advice. They regularly travel the country to keep in touch with the aviation community.

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Report Safety and Security Concerns

Available office hours (voicemail after hours).

0508 4 SAFETY

(0508 472 338)

isi@caa.govt.nz

For all aviation-related safety and security concerns.

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT

(0508 222 433)

www.caa.govt.nz/report

The Civil Aviation Act 1990 requires notification "as soon as practicable".

Accident Briefs

More Accident Briefs can be seen on the CAA web site, www.caa.govt.nz, "Accidents and Incidents".
Some accidents are investigated by the Transport Accident Investigation Commission, www.taic.org.nz.

Key to abbreviations:

AD = Airworthiness Directive **TIS** = time in service
NDT = non-destructive testing **TSI** = time since installation
P/N = part number **TSO** = time since overhaul
SB = Service Bulletin **TTIS** = total time in service

ZK-HUC Robinson R44 II

Date and Time:	25-Oct-2015 at 08:30
Location:	Raetihi
POB:	1
Damage:	Substantial
Nature of flight:	Agricultural
Pilot Licence:	Private Pilot Licence (Helicopter)
Age:	34 yrs
Flying Hours (Total):	505
Flying Hours (on Type):	255
Last 90 Days:	80

The pilot was engaged in a spraying operation, applying weed killer on a paddock in hill country near Raetihi. The pilot reported turning too tightly at the end of a run when approximately 20 per cent to 30 per cent through the load.

The pilot turned the helicopter into wind and downhill towards his escape route, but with inadequate power available to recover, the tail struck the ground.

The pilot reports that he has discussed the event with his peers, and that "they have all learned from this". The pilot also reports follow-up training with his instructor.

[CAA Occurrence Ref 15/5060](#)

ZK-TNM Tecnam P2004 Bravo

Date and Time:	27-Dec-2015 at 12:45
Location:	Raglan
POB:	2
Nature of flight:	Private Other
Flying Hours (Total):	182
Flying Hours (on Type):	104
Last 90 Days:	5

The aircraft experienced sudden sink crossing the fence, resulting in a heavy landing and a go-around. A safe landing was made on a second attempt. At the end of the landing roll, the aircraft was difficult to turn and leaning to the left side.

Damage to the left main landing gear was noticed, and a borrowed part fitted. The operator consulted the OEM manual and the aircraft was thoroughly tested and ground run before being flown back to Parakai. The nose gear part of the combined engine/nose gear mounting was subsequently replaced.

[CAA Occurrence Ref 15/6180](#)

ZK-EMN NZ Aerospace FU24-954

Date and Time:	14-Nov-2014 at 12:59
Location:	Mt. Linton Station
Damage:	Destroyed
Nature of flight:	Agricultural
Pilot Licence:	Commercial Pilot Licence (Aeroplane)
Age:	43 yrs

The Fletcher FU-24 struck the ground while conducting agricultural operations on Mt Linton Station in Southland. The pilot was able to extract himself from the aircraft and was taken to hospital with serious injuries.

The pilot stated that the aircraft stalled because he inadvertently raised the nose during a turn, resulting in a loss of airspeed and subsequent collision with terrain.

The pilot had over 3000 hrs flight experience, mostly in light aircraft air transport operations, before getting an agricultural rating. His agricultural training records revealed that the amount of instruction within the intermediate phase of the pilot's training had been reduced below the statutory minimum by the instructor, in recognition of the pilot's previous experience. The instructor also noted in the records that the pilot displayed above average abilities.

The reduction of training hours denied the pilot the opportunity to adequately manage the threats and challenges involved in the role change to low level agricultural operations.

[CAA Occurrence Ref 14/5360](#)

ZK-IBR Eurocopter AS 350 B3

Date and Time:	27-Jul-2015 at 13:20
Location:	Queenstown
Damage:	Minor
Nature of flight:	Transport Passenger A to A
Pilot Licence:	Private Pilot Licence (Helicopter)
Age:	36 yrs
Flying Hours (Total):	2198
Flying Hours (on Type):	651
Last 90 Days:	75

After disembarking the passengers during a scenic snowfields flight, the helicopter weather-cocked in a gust of wind and slid rearwards a short distance down a gentle slope, until the rear snowshoes dug in and caused the helicopters tail rotor blades to contact the snow. The machine was shut down and the passengers were recovered off the mountain a short time later by another helicopter. An engineering inspection was carried out and the helicopter was flown off the mountain later that day. It was returned to service at a later date after a thorough inspection.

[CAA Occurrence Ref 15/3673](#)

GA Defects

GA Defect Reports relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less. More GA Defect Reports can be seen on the CAA web site, www.caa.govt.nz, "Accidents and Incidents".

Cessna 172R

FADEC wiring loom

Part Manufacturer:	Continental Motors
ATA Chapter:	7300

Shortly after departure off runway 18L, the pilot reported a partial engine failure and requested to land on runway 36R. The aircraft was cleared as requested, and a safe landing was made. This was the first of a series of occurrences when the engine reportedly lost power in flight.

Extensive maintenance investigation was carried out to determine the cause of the engine power loss. On advice from the engine manufacturer, the FADEC and wiring loom were both replaced. These items were sent to the engine manufacturer for analysis. Following replacement of these items, the aircraft has flown approximately 100 hours without the symptoms recurring.

[CAA Occurrence Ref 16/1532](#)

Hughes 369E

Hook Manual Release Cable

Part Model:	528-023-01
Part Manufacturer:	Onboard Systems
ATA Chapter:	2500
TSI Hours:	2.9
TSO Hours:	697.6

While conducting sling load operations, the manual release cable conduit failed and resulted in an inadvertent release of the load. Due to the construction of the cable, the point at which the conduit failed was concealed by an environmental sleeve and was not detectable through a visual inspection. The cargo hook system had been in use for 697.6 hours since the last overhaul and 2.9 hours since the last annual inspection.

The manufacturer recommends that the cables be replaced if the conduit is broken or kinked, the inner cable is kinked, frayed, or has sticky operation (Onboard Systems Doc. 197-162-00 Rev 0). Preflight checks include both a visual inspection of the condition of the manual release cable, and a rigging check (Onboard Systems Doc. 121-006-01 Rev 1). If the failure occurred prior to the sling load operation, the visual check of the cable would not have detected the defect. The rigging check is completed by rotating the manual release lever to eliminate the free play, and checking for at least 1/8" (3.2 mm) of clearance between the release lever fork and the cable ball end. This may have detected the defect if it occurred prior to the flight.

Chemical hardening of the conduit due to agricultural spray chemicals is suspected by the engineer, and Onboard Systems was notified by the maintenance facility.

The operator replaced with a hydraulic cargo hook kit.

[CAA Occurrence Ref 16/3349](#)

Cessna 208

RH Interconnect Rod

Part Model:	208
Part Manufacturer:	Cessna
Part Number:	2660020-7
ATA Chapter:	2750
TTIS Cycles:	23
TTIS Hours:	60.8

When the pilot selected 10 degrees of flap, a bang was heard from the right side of the aircraft, followed by an uncontrolled roll to the left. The pilot had no aileron control to the right, but by increasing speed to 100 knots, roll control was regained with a large rudder input.

Maintenance investigation found that the right flap inboard bell crank interconnect rod had failed. This was determined to be due to excessive loading when flaps were fully up, caused by incorrect flap rigging from new. The interconnect rod was approx 1/4" too long, causing excessive preloading when the flaps were retracted. A new interconnect rod was fitted and rigged IAW C208MM.

As a follow up measure, the CAA contacted the FAA who have appointed their Continued Operational Safety Program Manager for the C208 to liaise with Textron Aviation (Cessna) regarding this defect.

[CAA Occurrence Ref 16/1393](#)

Pacific Aerospace Cresco 08-600

Horizontal Stabiliser

Part Model:	Cresco
Part Manufacturer:	Pacific Aerospace
Part Number:	08-30011-4
ATA Chapter:	5500

The horizontal stabiliser was found loose at the left hand forward and aft mounting attachments, with minor movement also apparent on the right hand side.

Maintenance investigation found that the horizontal stabiliser had been previously installed incorrectly, with a non-standard aluminium packer between the stabiliser rear spar and the aircraft rear bulkhead attachment. Rivet heads on the spar sat against the surface of the packer, causing point loading and allowing ingress of moisture and fertilizer. This resulted in the rivet heads fretting away causing the horizontal stabiliser to come loose. The rear attachment holes in the rear bulkhead were worn, requiring bushing to bring them back to standard size using an approved repair scheme. A replacement horizontal stabiliser was fitted.

[CAA Occurrence Ref 15/5773](#)

Aviation Safety Coordinator Course

Nelson

13 to 14 October 2016

Quality Inn Nelson
40 Waimea Road, Nelson

Auckland

10 to 11 November 2016

Sudima Auckland Airport
18 Airpark Drive
Airport Oaks, Mangere
Auckland

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