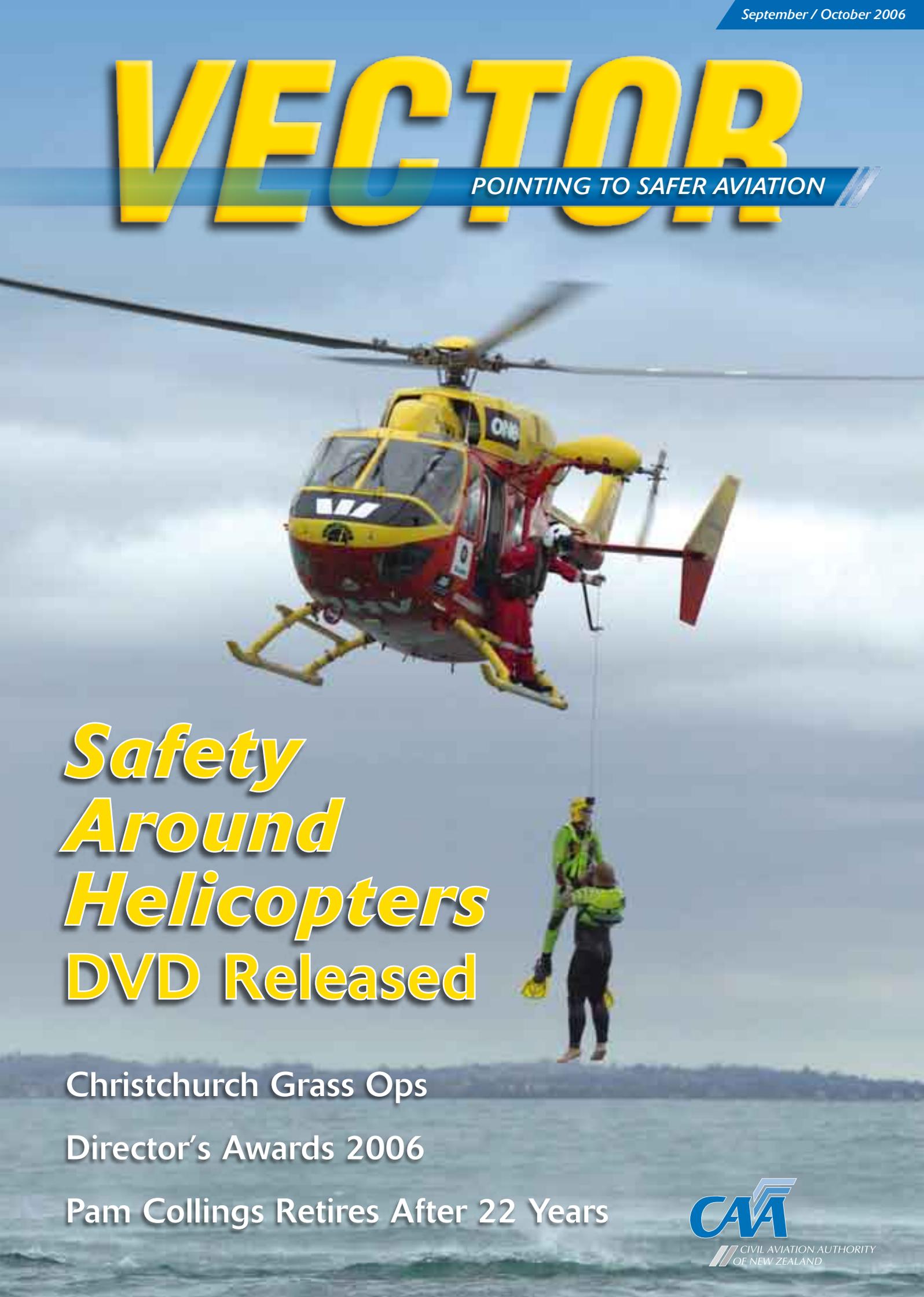


VECTOR

POINTING TO SAFER AVIATION



Safety Around Helicopters DVD Released

Christchurch Grass Ops

Director's Awards 2006

Pam Collings Retires After 22 Years



CIVIL AVIATION AUTHORITY
OF NEW ZEALAND



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Safety Around Helicopters DVD Released

A new DVD, *Safety Around Helicopters*, was released by the CAA in September. It is aimed at members of the public whose activities may involve helicopters, such as trampers, skiers, snowboarders, boaties, farmers, construction workers, and tourism operators.



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Christchurch Grass Ops

The grass runway at Christchurch International Airport allows GA aircraft to operate at the same time as IFR aircraft are using the parallel sealed runway. Here is some advice on how to operate safely when using the grass vector.



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Pam Collings Retires After 22 Years

Pam is known throughout the aviation community for her aerobatic flying, flight instruction, precision flying, and work for the CAA, mostly in safety education. We chat to Pam about her flying and career.



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Director's Awards 2006

The Director of Civil Aviation Awards are presented each year to an individual and an organisation with an overwhelming safety ethos. We reveal this year's winners, together with the Civil Aviation Authority Flight Instructor Award.

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Part 43 Changes



Part 43 *General Maintenance Rules*, Part 91 *General Operating and Flight Rules*, and Part 145 *Aircraft Maintenance Organisations – Certification*, were the first three Parts under the new Civil Aviation Rules system in 1993. Since then they have remained largely unchanged.

A major project to amend Part 43 has been in progress since 1997 as a result of lobbying from industry and a need to tidy anomalies and errors that do not reflect current practices.

The project has developed into a major review, aimed at improving maintenance standards by amending 17 Parts of the Civil Aviation Rules. They relate to aircraft, maintenance and airworthiness requirements.

The amendment is in three packages, with the principal changes to: Part 43 *General Maintenance Rules*, Part 119 *Air Operator – Certification*, and Part 21 *Certification of Products and Parts*. All amendments are currently with the Regulations Review Committee. They will then be passed to the Minister for signing, before becoming law.

With the amendment packages nearing completion, now is a prudent time to see if the proposed changes will affect you.

Significant Changes Include

- ⊙ The scope of maintenance that pilots, and licensed aircraft engineers who lack appropriate ratings, can perform, as well as the training requirements to carry out maintenance.
- ⊙ Duty time limits for engineers will move from the operating rules to Part 43, and limits for engineers performing and certifying maintenance have been added.
- ⊙ Aircraft not maintained in accordance with a maintenance programme approved or accepted under Part 91, or Part 119, will be required to be maintained in accordance with the manufacturer's recommended maintenance schedule. Prescriptive

annual and 100-hour maintenance check requirements will be deleted from Appendix C of Part 43.

- ⊙ Compliance with the manufacturer's recommended time between overhauls (TBO) will be required, with exceptions only for piston engines and propellers in certain types of operation, and aircraft operating under approved or accepted maintenance programmes.
- ⊙ A full description of maintenance performed on an aircraft and the reason for that maintenance is to be recorded. More detailed identification requirements will also be put in place for persons performing and certifying maintenance.
- ⊙ Changes to the duplicate inspection requirements, and the certification statement.
- ⊙ Minimum aviation qualifications will be set for people performing duplicate inspections of aircraft controls.
- ⊙ The requirements for conducting an annual review of airworthiness (ARA) will change. In particular, an ARA will not be able to be certified as complete until defects found with the aircraft and documentation are rectified. A 36 day non-cumulative planning latitude on ARAs will be introduced.
- ⊙ Tampering with time-in-service records (TISR), when required to be fitted, will be prohibited. A prioritisation of aircraft and types of operation that will require TISRs, and a standard for TISRs, are also proposed.
- ⊙ Certain aircraft will be required to be fitted with a means of detecting a carbon monoxide presence in the cockpit.
- ⊙ Identification details for 406 MHz ELT beacons will need to be supplied to the Rescue Coordination Centre.
- ⊙ Periodic calibration of compasses will be required, consistent with CAA Advisory Circular AC43-7, and emergency equipment tests and inspections consistent with AC43-6.
- ⊙ Operators of microlight aircraft fitted with transponder equipment will be required to have that equipment periodically tested and inspected. In addition, microlight aircraft fitted with transponders will need to have their altimeter systems, including the automatic pressure altitude reporting system, tested and inspected, as these systems affect the accuracy of the collision avoidance and radar surveillance information transmitted by the transponder.
- ⊙ Flotation equipment tests and inspections are proposed for all aircraft required to be fitted with the equipment, including microlight aircraft and manned balloons.
- ⊙ All powered aircraft with a seating capacity of four or more, that are not operating under an approved or accepted maintenance programme, will be required to be reweighed every five years.
- ⊙ Changes in relation to the approval of maintenance programmes, which will affect records and technical reference material, inspection schedules and escalation of manufacturer's TBO.
- ⊙ Greater flexibility will be possible when issuing Part 145 authorisations to persons performing maintenance.
- ⊙ Changes in relation to the retention of records, including technical logs.

Remember, this is only a summary of the significant changes, not a comprehensive description outlining everything, so make sure you familiarise yourself with the actual rules.

The CAA is going to conduct a series of seminars, nationwide, highlighting the changes that will take place. The dates for these seminars will be advertised on the CAA web site, www.caa.govt.nz. ■

Safety *Around* Helicopters

DVD Released

The Minister for Transport Safety, Harry Duynhoven, launched a new aviation safety DVD, *Safety Around Helicopters*, in September. It is aimed at members of the public whose activities may involve helicopters. The DVD was jointly produced by the Civil Aviation Authority (CAA) and Video New Zealand.



The DVD is divided into modules so people can view the information relevant to their activity. The Introduction is designed to be viewed by everyone – it gives information on safely approaching a helicopter, and using the doors and seat belts.

The specific modules are: Going Bush, The Mountains, Industry, All at Sea, Corporate & Tourism, and Rescue on the Land. There is also a module on Helicopter Identification.

In launching the DVD, Harry Duynhoven said that New Zealand had more helicopters per head of population than any other country. He congratulated the CAA and Video New Zealand for recognising the need to educate the public about helicopters.

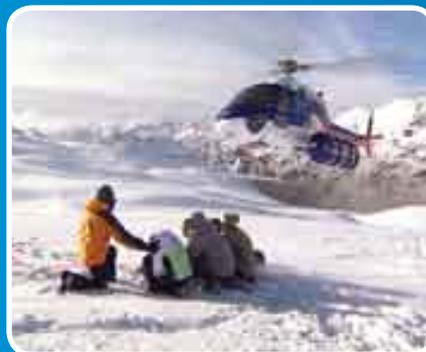
He said that it will be of benefit:

- to trampers and hunters who are going bush;
- to those industries that may have to prepare a site for a helicopter to undertake lifting operations;
- to the tourists and corporate clients who may use a helicopter for transport, sightseeing or other recreational activities;
- to the growing numbers of skiers and snowboarders who use helicopters to access our mountains;
- to the many boaties who at some time may require assistance in an emergency; and
- to the many people who live, work, or operate in remote parts of our country that are difficult to access, and who may require emergency assistance at short notice by day or by night.



Going Bush

Requirements for the safe transport of trampers and hunters and an emergency retrieval are shown.



The Mountains

The safety briefing, and procedures for embarking and disembarking, are shown in the transporting of skiers and snowboarders.



Industry

This module shows how to prepare a building site for the use of a helicopter, including checking for wires, securing loose articles, etc.



“With the increasing number and use of helicopters in New Zealand, I am confident that this DVD has the potential to improve safety standards for all people who come into contact with helicopters. This will flow on into safety benefits to those in the rotary sector of the aviation community,” said Harry Duynhoven.

The Director of Civil Aviation, John Jones, thanked all the people and organisations who had contributed to the production of the DVD.

“The contribution of the helicopter operators around the country who put in their time, expertise, and resources was essential – without that commitment, this project would not have been possible.

“The level of cooperation demonstrated in making this project a success is an excellent illustration of how the aviation community, and those who interact with it, can work together to make aviation in New Zealand even safer,” said John Jones. ■

Thanks to the DVD Sponsors

- Transpower
- Department of Conservation
- Ministry of Civil Defence
- Eurocopter
- Landcorp

Thanks to the People and Companies that Contributed

- Amalgamated Helicopters, Wairarapa
- Auckland Rescue Helicopter Trust
- Clark & Jolly, Taupo
- Columbia Helicopters, Tauranga
- Denray Marine, Auckland
- Harris Mountains Heli-Ski, Queenstown
- Heletranz, Auckland
- Helicopter Services, Taupo
- Heli-Flight, Masterton
- Helipro, Wellington, Paraparaumu and Rotorua
- Landcorp, Taupo
- Life Flight Trust, Wellington
- Marlborough Helicopters
- NZ Land Search and Rescue
- NZ Mountain Safety Council
- NZ Police Maritime Unit, Auckland
- RNZAF 3 Squadron, Ohakea
- St John
- Tararua Heliwork, Wairarapa
- The Helicopter Line, Queenstown
- Wellington Free Ambulance

Copies of the DVD can be borrowed from the CAA library for free – just email info@caa.govt.nz.

They can be purchased directly from:

Video New Zealand
42 Cypress Drive
Maungaraki
Lower Hutt 5010
Email mike@videonz.co.nz



They are \$23 each, plus \$7 post and packing for each order (including GST). For orders of 10 or more, contact Video New Zealand for a quote.



All at Sea

The preparation and methods for a safe retrieval off a yacht are shown.



Corporate & Tourism

Passenger briefings vary with machine and destination – several examples are shown.



Rescue on the Land

An injured farmhand in a remote area is rescued by helicopter. This module shows how to choose and set up a landing site, with examples in both daylight and at night.

Christchurch Grass Ops



Christchurch International Airport is unusual in that it has a large number of general aviation (GA) aircraft operating there as well as large commercial aircraft. Here is some advice on how to operate safely when using the grass runway at Christchurch.

The Grass Runway 02/20 allows GA aircraft to operate at the same time as IFR aircraft are using the parallel sealed Runway 02/20. This minimises delays to scheduled traffic and means sealed runway capacity issues can be avoided.

The lateral separation between the grass runway, and the sealed runway to the east of the grass, is only 165 m. In addition, considerable helicopter traffic operates to and from the Christchurch Helicentre approximately 300 m to the west of the grass runway. This busy environment requires

pilots using the grass runway to be aware of all other aircraft movements to or from the aerodrome.

The grass runway circuit height is 900 ft amsl, inside and below the sealed runway circuit of 1500 ft amsl.

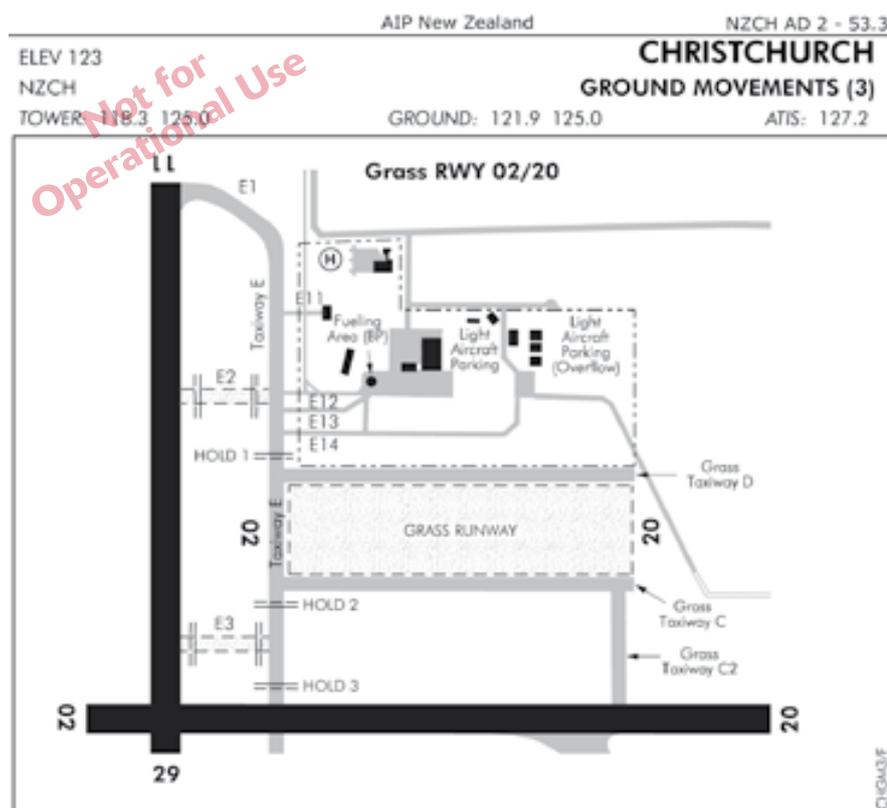
Grass Runway 02/20 is 515 m long and has a group rating of 3. This is below the group rating of the most common GA aircraft types. It may be necessary to check a performance chart for your aircraft to make sure you can safely use the grass vector, particularly if it is a hot day. If you have any doubts

about getting airborne from the grass, request to use the sealed runway.

The grass runway is outlined by white marker boards. Two grass taxiways are situated on either side of the grass runway. Grass Taxiway D, on the western side of the grass runway, has white marker boards on the eastern edge and yellow marker boards on the western edge. Grass Taxiway C, on the eastern side of the grass runway, has white marker boards on the western edge and yellow marker boards on the eastern edge.

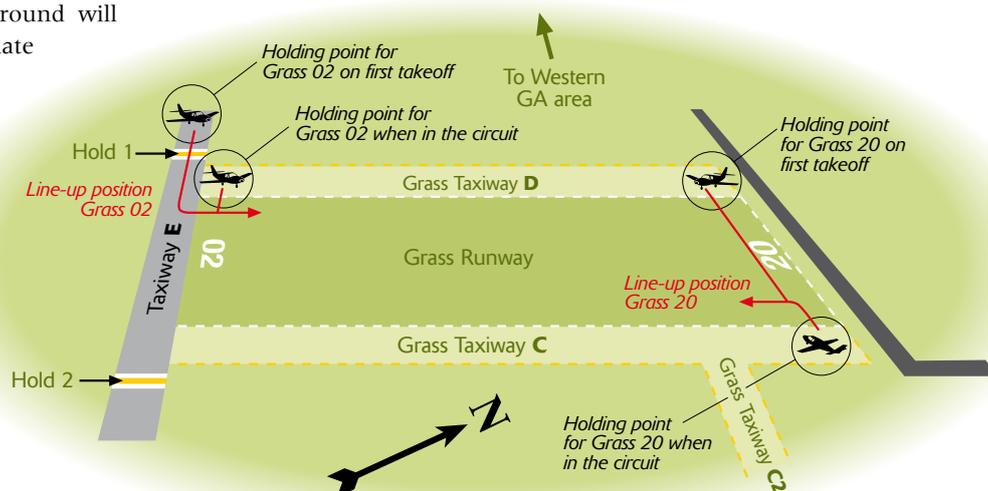
Departures

AIP New Zealand Vol 4 contains VFR arrival and departure procedures for Christchurch – it is worth familiarising yourself with these before flight. GA aircraft departing from Christchurch should listen to the ATIS (127.2 MHz) and call Christchurch Ground (121.9 MHz) for a taxi clearance. Let Christchurch Ground know at this point if you require





Grass Runway Line-Up Positions



the sealed runway for departure, or if you would like a particular departure procedure. If using the grass, Christchurch Ground will issue a taxi clearance to the appropriate holding point. If you are departing from the western GA area and Grass 02 is in use, you will be cleared to Hold 1, located on Taxiway E, and if Grass 20 is in use you will be cleared to Grass Taxiway D. This clearance will normally include your VFR departure instructions as well.

When ready at the holding point, contact Christchurch Tower (118.3 MHz). If wake turbulence has been generated by sealed runway traffic, you may be kept at the holding point in order to keep the grass runway clear for landings. Christchurch Tower will give a line-up or takeoff clearance. Unless instructed otherwise, line up on the lefthand side of the grass runway, allowing reasonable space on your right for other aircraft to land or take off. When holding on Taxiway D for Grass 20 you should taxi across the full width of the grass runway to line up on the lefthand side, as shown in the diagram.

Just before you roll, make a mental note of any sealed runway traffic that may be about to depart or overshoot, as this may overtake you on the climb-out. Because there are simultaneous operations, aircraft taking off or overshooting on the grass runway must not converge towards the main sealed runway. Make a note of the 2000-ft wind from the ATIS, as this could affect your climb path. *AIP New Zealand Vol 4* requires aircraft airborne from the grass vector to turn away from the main runway by at least 10 degrees when passing 420 ft amsl, and to then fly a square crosswind. This small turn away from sealed runway helps to add a buffer between the grass and sealed runway traffic.

Christchurch Tower may give you a non-standard turn towards the main runway if you are departing to the east. In this case a divergence of 10 degrees is not necessary. A clearance direct to the east is dependent on the traffic situation at the time and should never be anticipated. If it is not available, depart the circuit mid downwind, cross overhead the tower, and then carry out your assigned VFR departure procedure.

Arrivals

Pilots should listen to the ATIS (127.2 MHz) for conditions at Christchurch, and contact Christchurch Tower (118.3 MHz) prior to entering the control zone.

Joining from the West

Christchurch Tower will issue circuit joining instructions once you have completed your assigned VFR arrival procedure. If there are aircraft in the grass circuit, you will be given circuit traffic to follow. Listen carefully to exactly where you are told to join the circuit, as you may be given base, mid downwind, or early downwind, to fit you into a gap.

Late in the day, the controllers in the tower at Christchurch are staring directly towards the setting sun when looking for aircraft to the west. This makes it more difficult for them to see aircraft joining the circuit. The situation is particularly bad during the winter months. It is always important for pilots to keep a good lookout for other traffic, but extra vigilance is required at this time of the day. Listen carefully to the traffic information you are given, and let the tower know you have "traffic in sight" as soon as you can see it.

If an IFR aircraft is on approach for Runway 11 you can

Continued over...



Simultaneous operations on the parallel grass and sealed runways at Christchurch.

... continued from previous page

expect to be held west of the visual reporting point Pine until you sight the IFR traffic and are able to follow it or pass behind it.

Joining from the East

Joining for the grass runway from the east is more complex than from the west. On the completion of your VFR arrival procedure, Christchurch Tower must then decide how to move you through the instrument sector, to join for the grass.

At busy times, Christchurch Tower will clear you to track overhead the tower and join lefthand or righthand downwind,



Downwind for the grass runway abeam the Grass 20 threshold.

depending on the runway in use. To clear you overhead, the controller has to take into account the following: departing sealed runway traffic; IFR training; a possible missed approach by arriving IFR traffic; opposite direction traffic departing to the east through the overhead; and the position of grass runway traffic. For this reason, it is common to be held at Russley until the tower controller can get you across. While in the process of crossing overhead the tower, remember that the tower roof stops the controller from being able to see you from shortly after Russley, until you are west of the sealed runway. If it is not too busy, however, you will normally be cleared direct from the east onto a non-standard left or right base for the grass runway.

Whenever possible, do not extend the grass circuit further north or south than the sealed Runway 02/20 thresholds. If the grass circuit is extended beyond the sealed thresholds, then GA aircraft on a medium or long final for the grass become significant traffic for aircraft using the sealed runway. Keep the base leg of the grass circuit abeam the sealed runway thresholds or closer.

If you require a larger circuit, contact Christchurch Tower to request this, and be aware they may have to sequence you with sealed runway traffic to make this possible. When the grass circuit is busy it is particularly important to stay within the sealed thresholds. If one aircraft extends downwind, then other grass traffic is forced to make bigger than desirable circuits to avoid catching up on aircraft ahead.

As you turn from base to final, do not go through the centreline of the grass runway and end up to the east of the final approach track. Remember, the sealed runway is only 165 m to the east of the grass runway. This can make the controller, and the pilots of IFR traffic on final, very uneasy.

Be aware that wind aloft can affect you, and cause your aircraft to drift through the grass centreline on approach. For example, when there is a steady north-easterly wind on the ground, but a north-westerly wind aloft, and Grass 02 is in use, aircraft can be pushed to the east during the turn from base to final. In this situation it can work out well to roll out on final over the primary surveillance radar aerial and allow the wind to drift you on to the grass centreline. This is a more prudent option than having to cut back to the west after missing the centreline and possibly affecting other traffic.

GRASS RUNWAY 20



Base for Grass 20. Do not go any further north than the sealed runway threshold shown.



Final for Grass 20. Note the traffic landing ahead on the grass runway and departing from the sealed runway.



Short final for Grass 20. Note how difficult it is to see the white marker boards. There is an aircraft on Grass Taxiway C.

Landing

The landing area of the grass runway is 135 m wide and is outlined by white marker boards. Visually, the width of the grass runway can look a little strange to a pilot unfamiliar with it. By comparison, the width of the two grass taxiways on either side of the runway better fit the mindset of what a grass runway should look like. Do not be tempted to land on either of the grass taxiways instead of the grass runway – as itinerant pilots have mistakenly done from time to time.

AIP New Zealand NZCH AD2-51.2 gives the following arrival procedures for Grass Runway 02/20:

- Runway separation is not provided on the grass and aircraft may be cleared to land up to number 3.
- Landing aircraft shall land on the right of any aircraft which has already landed or is about to land or which is taking off or about to take off.
- Landing aircraft shall leave a reasonable space to the right for other aircraft to land or take off.
- After landing, aircraft shall turn left, unless otherwise instructed by ATC, for the purpose of observing other aerodrome traffic, and then move clear to Grass Taxiway C or D as soon as possible.
- Aircraft manoeuvring on the ground shall give way to all aircraft landing and taking off.

The requirement to turn left after landing is so that aircraft taxi in a safe direction, away from possible traffic landing to the right. The only time tower controllers will offer anything other than a left turn after landing is when Grass Runway 20 is in use, your flight will be complete on landing, and there is no other traffic in the circuit behind you. In this case the tower would use the phraseology “Cleared to land right, taxi right”. Meaning you can land on the righthand side of Grass Runway 20, make a right turn after landing, and taxi to Grass Taxiway D. If traffic does not allow this, then you will be required to land on the lefthand side, taxi left onto C and hold until the controller clears you across the grass runway to the western GA apron. The following diagram shows typical approach positioning, roll out, and turns after landing for Grass Runways 02 and 20.

When overshooting, be careful not to converge towards the sealed runway; passing 420 ft amsl start a turn away from the sealed runway by at least 10 degrees, and then fly a square crosswind leg. An early turn into the circuit will sometimes be given if there is no crosswind or early downwind traffic.

This helps by moving you away from the sealed runway sooner, particularly if there is wake turbulence from a departure.

Continued over...



Base for Grass 02. Do not go further south than the sealed runway threshold shown.

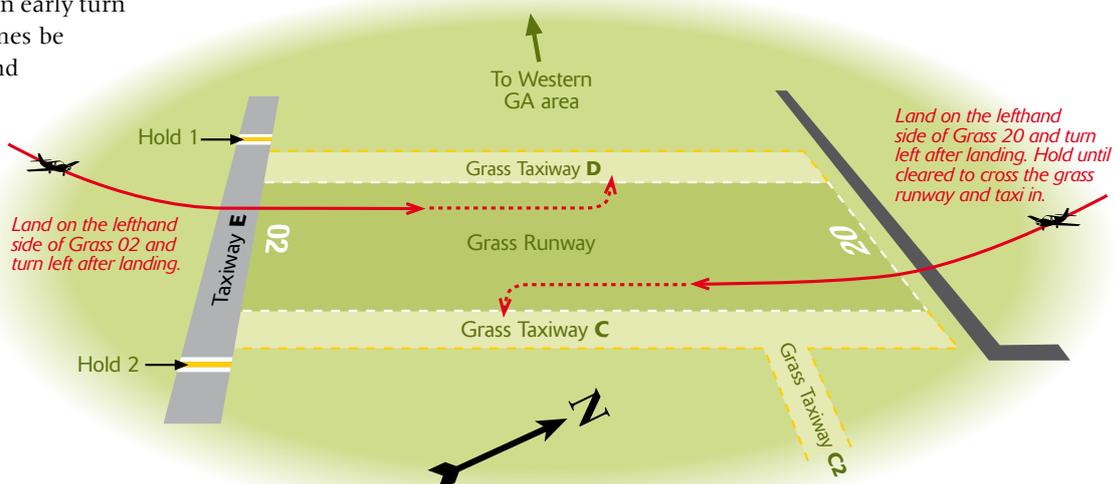


Turning final for Grass 02.



Short final for Grass 02, lined up on the left side of the runway. Note how difficult it is to see the white marker boards.

Grass Runway Landing Positions



... continued from previous page

Wake Turbulence

Even though simultaneous parallel operations are approved for the sealed and grass runways, wake turbulence separation still needs to be applied. This often interrupts grass traffic, particularly those remaining in the circuit. If circuit training is required, try to avoid the peak times of 1100 to 1200 and 1400 to 1600, when significant disruption can be expected. A string of heavy or medium wake turbulence category aircraft depart at these times. These aircraft can be radar released two minutes apart, and each departure creates a three-minute delay for light GA aircraft taking off on the grass runway, as this is an intermediate takeoff position. This can result in continuous wake turbulence delays for between 10 and 15 minutes at a time. GA pilots can help the tower controller by listening out and being ready for an expeditious departure when there is a gap.

On final for the grass runway, be aware that you could be instructed to go around if an aircraft has departed from full length on the sealed runway and rotated before the grass vector. This generally occurs only when Runway 02 is in use. In this situation an early crosswind turn will normally be given to keep you clear of the departing aircraft's wake turbulence.

The Grass Circuit

Christchurch Tower will normally limit the number of aircraft operating in the grass circuit to four or fewer. More than four aircraft in the circuit can force the downwind leg to extend beyond the sealed threshold limitation. A maximum of four also leaves enough gaps for departing and arriving grass traffic.

If the Canterbury Aero Club has four aircraft in the grass circuit and another local operator requires grass circuits, the aircraft that has been operating for the longest period of time may be asked to vacate the circuit. If a fifth Canterbury Aero Club aircraft requires grass circuits, then it would be normal for them to wait until one of the four aircraft was complete before taxiing out.

When remaining in the grass circuit, remember to change your transponder

from 1200 to 2200. This allows the tower to operate a 2200 filter on their screens, reducing label clutter close to the airfield.

The grass runway is often closed after frost or rain. This means all traffic has to be sequenced for the sealed runway. If circuit training is required it is unlikely that sealed runway circuits will be available unless it is outside peak times, so plan circuit training at another airfield while the grass is closed. A NOTAM will be issued when the grass runway is closed, and it will also be stated in the ATIS. ■



Important AIP New Zealand Vol 4 pages to study before using the grass runway:

NZCH AD2-35.2 VFR Arrival Procedures RWY 02/20. The procedures on this page apply to VFR arrivals for both the sealed runway and the grass runway. Note that the five arrival procedures from the west include extra instructions for aircraft joining for the grass runway.

NZCH AD2-51.1 and **51.2** give the circuit altitude and direction and a list of procedures for Grass Runway 02/20.

NZCH AD2-52.1 gives takeoff and landing distances, and group rating, for grass runway performance calculations.

NZCH AD2-53.3. The Christchurch ground movements chart (3) shows the position of the grass runway, Grass Taxiways C and D, the holding points (Hold 1,2,3) on Taxiway E and the taxiways to the aero club and western GA areas.

NZCH AD2-52.2. The Christchurch Helicentre procedure page is useful study, because of its close proximity to the grass runway.

Pam Collings Retires After 22 Years

It used to be about putting the aeroplane precisely where she wanted. Now she enjoys the view more.

World aerobic competitor, aviation safety writer, flight instructor and aviation archivist Pam Collings has retired from the CAA after 22 years of service.

The 60-ish, neatly groomed lady working quietly at her desk, filtering out stray commas and nonsensical writing has been a humbling warning to anyone who would judge a book by its cover.

She is a Member of the New Zealand Order of Merit for services to aviation, is an awardee of the Royal New Zealand Aero Club's award for Notable Achievement in Aviation in New Zealand, has been awarded the Nancy Bird Trophy for the most noteworthy contribution to aviation by a woman of Australasia, and in 1993 received the Fédération Aéronautique Internationale Paul Tissandier Diploma for services to aeronautics and airports.

Pam's 5000 hours were garnered the long way – aerobatics, club flying competitions, instructing, and personal cross-countries. The first few were free. In 1964, an 18 year old Pamela Lock, part-way through a science degree at Canterbury University, entered a flying scholarship sponsored by Airwork (the then Piper agents) at Canterbury Aero Club.



"I had two older brothers who were close to my age, so I used to do things with them, like fix and drive the family Morris 8, and later a classic MG. So when one brother entered a flying scholarship, I thought 'Why can't I do that too?'," Pam said.

She beat off about 120 other would-be pilots and won the scholarship for a free private pilot licence. Flying became her passion.

"It was like driving. Neither is about pure speed. It's the challenge of having the coordination to put the aircraft where you want it to go, and to always be improving," Pam says.

"If I am going to do something, I have always wanted to do it properly and to the best of my ability."

It was natural then, that aerobatics and precision flying would appeal. At 27, while touring Europe with a tent and a couple of girlfriends, Pam stopped off in France to watch the World Aerobatic Championships.

"When I first saw a Pitts Special, I thought 'Oh'. And I started trying to figure out how I could get a single-place Pitts."

Pam managed to secure a loan from her parents and bought a brand new Pitts for \$14,000 (US \$20,000).

"I am to this day very grateful to them because so often in life, we can't afford to chase our dreams at the time we have the energy and enthusiasm to do it."



"If I am going to do something, I have always wanted to do it properly and to the best of my ability."

If it was fairly unusual for a girl to be buying her own aerobatic aircraft in 1970s New Zealand, it was definitely uncommon at the Afton, Wyoming United States Pitts Special factory.

"I drove myself from Los Angeles to the Pitts factory to see it. I'd ordered a tiki to be painted on the tail, but when I got there they hadn't done it. I don't think they thought I was going to show up," Pam says.

The aircraft was delivered to Florida, where Pam completed further training and then started travelling the United States, following the aerobatics circuit. A life kept low-cost on a diet of tuna salad sandwiches.

In 1976 Pam was one of just 12 women entered in the World Aerobatic Championships and the first New Zealand woman ever to enter. She placed 47 out of 68 pilots.

"I wasn't bottom of the field, and New Zealand was represented," she says.

She competed again in 1980 placing eighth out of nine women competitors.

Pam began her career with the CAA in 1984 as an enforcement officer, and in 1989 moved across to the safety education role for which she is best known.

Pam has written for *Vector* and its predecessors for 17 years, has worked on 26 safety videos and many safety booklets, posters and other products.

Throughout, she has taught others, retiring as a B-category instructor just last year.

"Safety and instructing are inseparable. In reality, every instructor is really doing a safety education job," Pam says.

The former university librarian lives now at Forest Field, Canterbury, the private airfield owned with husband Ces. The pair have a share in a Cherokee 180.

"I'm down to about 30 hours per year now, and I pick my days. A clear winter's day with snow on the mountains is hard to beat. Flying is more about pleasure now. With any flying, you have to leave behind on the ground any worries or concerns and put all your attention on flying the aircraft.

"These days I notice it's also good for the soul to look out the window, get the bigger picture and enjoy the scenery," Pam says. ■

Adventure Aviation



Over the last two decades several sport and recreational aviation activities have grown into significant commercial operations. The applicable Rules, however, were designed for amateur sport and recreation activities, not commercial “hire or reward” operations. A new regulatory system is needed for the industry to operate as safely as possible.

Adventure aviation is defined as any activity or combination of activities, where passengers are carried by air, for hire or reward, and the primary purpose of the activity is the experience of flight in the aircraft, or of engaging in the aerial activity itself.

This covers activities:

- from ‘A to A’, in aircraft certificated in the standard airworthiness category, conducting non-standard manoeuvres;
- from ‘A to A’, in any aircraft not certificated in the standard airworthiness category, for example vintage, ex-military, and microlight aircraft;
- in hot air balloons, tandem parachutes, hang gliders, and paragliders.

The CAA’s policy on adventure aviation was finalised in August 2006. This policy will form the basis of the current rulemaking project to develop a new rule part (to be called Part 115).



Current Problems

There are several problems with the current regulatory system. In particular, there is no mechanism for the Director to certificate individual operators. At present hang glider, paraglider, balloon, and skydiving companies are not required to hold an aviation document in order to operate.

This means the standards for entry control, monitoring, and exit control are inadequate for a hire or reward activity, and there is no requirement for safety

management systems and proper management structures.

The rules for some of the activities were not designed to regulate the carriage of fare-paying passengers. There are no requirements, for instance, to undergo risk assessments or put in place mitigation procedures.

Inconsistent requirements for different sectors of the aviation community are also resulting in different levels of competence and safety performance. Hot air ballooning does not have a Part 149 organisation to oversee this sector, and there are no specific rules applicable to this type of operation.

Non-Standard Category Aircraft

Operators are currently not allowed to use aircraft with non-standard category airworthiness certificates for hire or reward operations. Part 115 will ensure these services are able to be provided within a regulatory framework and at an appropriate level of safety.

Summary of Policy

The CAA's policy is to:

- define a new category of aviation activity within the General Aviation sector to be called "Adventure Aviation";
- regulate the various different activities that make up the adventure aviation sector through a new rule part (to be called Part 115);
- develop within the proposed Part 115, a set of general requirements applicable to all adventure aviation operators with sub-parts containing standards applicable to specific sectors;
- include a requirement for individual operators to hold an aviation document issued under Part 115; and
- administer Part 115 utilising industry experience as much as is practicable, consistent with their level of capability and their desire to be involved.

Consultation

In the third quarter of 2004 the CAA consulted widely on the issues surrounding adventure aviation. As a result, a policy position was published in June 2005. The CAA received 45 submissions on the June 2005 paper. The majority of submissions were supportive of the proposal for a new Part 115. All submissions were considered in developing the August 2006 policy on adventure aviation. This policy will form the basis of a rulemaking project to develop the proposed rules. The aviation community will have the opportunity to be involved in the development of Part 115 when Project Working Groups are formed. When the Notice of Proposed Rule Making (NPRM) has been prepared, industry participants and the public will have the chance to make submissions on the proposed rules.

The entire CAA policy on adventure aviation can be found on the CAA web site www.caa.govt.nz, under "Rules & more – Projects Under Development". For more information about the Rule Development Process, and how you can be involved, see our booklet, *The Rule Development Process*. You can obtain copies from your nearest flight training organisation or CAA Field Safety Adviser (see page 23), or email info@caa.govt.nz. ■

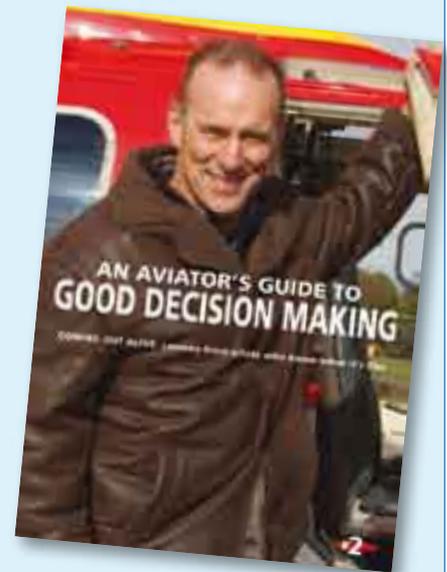
AIRCARE™ Update

Recipients of *Vector* will shortly receive the second DVD in the AIRCARE series. A little while in coming, DVD2 takes up from the Risk Management theme of the first DVD by applying those concepts to Aviation Decision Making. Again hosted by the inveterate and irrepressible Jim Hickey, DVD2 mixes scientific knowledge with practical experience.

A former RNZAF aviation psychologist, Keith McGregor, explains to Jim just how the brain works when it is making decisions. He explains what it can do, and also what it can't do. He reminds us that humans evolved with skills and aptitudes suited to "walking speed". For contrast, he points out that the brain of the housefly makes spatial separation decisions at over 100,000 times the rate of humans.

Keith explains what helps the brain make good aeronautical decisions, and what hinders it. Jim then talks about these ideas with some of the country's well-known and respected aviators who explain how they approach decision making.

The DVD contains plenty of contrast. Good news and bad news stories are



shared. Fixed wing and rotary wing pilots put their points of view and share their tricks of the trade. The perspective of the air traffic controller is there too.

The booklet with this DVD includes a simple test so that you can evaluate your own decision making aptitudes.

When the mail arrives, be sure to watch this excellent presentation. And remember ... *Be Risk Aware and Double Check*. It may keep you alive.

STOP PRESS!

PILOT EXPO General Aviation Exhibition

Ardmore Aerodrome
2 and 3 December 2006

We have just heard that this expo will take place, and the CAA will be presenting a Safety Seminar – see the November/December *Vector* for more details, and keep an eye on our web site, www.caa.govt.nz, see "What's new".



An ARA Must Include Role Equipment



Camera

Operators may ask why they have to bring their role equipment with them for an Annual Review of Airworthiness (ARA). Role equipment can be cargo pods, spray gear, winches, or ski baskets for example. Both fixed wing and rotary wing aircraft use role equipment, but it is a larger issue for rotary operators. For example, one operator recently identified 263 items of role equipment for their fleet of helicopters.

ARA for your aircraft. The ARA requires that any modification (role equipment is a modification) conforms to its technical data and all due maintenance (role equipment must be maintained to remain in an airworthy condition) has been done. The maintenance requirements should be detailed in the technical data included with the modification when the equipment was installed – otherwise it is subject to the 100 hour/annual regime with the aircraft.

You will be aware of the requirement to have an ARA every 12 months (rule 91.619 *Annual review of airworthiness*). What sometimes slips the attention of operators is the requirement that the aircraft must be presented in the condition it is to be operated in. So any role equipment you may use from time to time needs to be presented with the aircraft (rule 43.153 *Review requirements*).



Mirror

Platform

Helicopters often use role equipment. This example shows an external mirror, and a platform used for work on electrical cables.

Put simply, role equipment involves “modifications” and “components” and these must be included in an



Winch

Searchlight

The CAA understands that there can be logistical difficulties when there is one set of equipment that can be fitted to a number of aircraft, and also that it may not be possible to transport all of a machine’s equipment at the same time. This does not change the requirements above, and the logistics need to be managed so that airworthiness standards are not compromised.

If it is physically impossible for you to transport all items of role equipment for the ARA, you might consider transporting the maintenance provider or Inspection Authority (IA) to your base – possibly an easier logistical task. Otherwise, contact the CAA for advice.

If you have any inquiries relating to this you can contact:

John Bushell
Airworthiness Coordinator
Tel: 0-4-560 9427
Email: bushellj@caa.govt.nz

Or

Paul Elton
Airworthiness Inspector
Tel: 0-4-560 9472
Email: eltonp@caa.govt.nz ■

Sling Loads Revisited

Since the publication of the last issue, two readers (both helicopter pilots) have been in touch regarding the article on sling loads. They point out that in the fourth photo the use of a small link or shackle can result in the shackle being caught on the hook tang on release, when the shackle is under



tension. This means that it may be difficult or impossible to jettison a load in an emergency, or the pilot may find that the load is still firmly attached to the hook even though the release mechanism has been operated.

The original article was suggested by two operators (independently), as they had experienced the loss of a sling load in the manner illustrated in the original article. We pointed out the pitfalls of one method; now we have been made aware of the pitfalls of the other. In the final analysis, it is up to the operator to decide on the safest course of action. ■



Precautions Following a Bird Strike

The following notice has been issued by the International Air Transport Association (IATA) in August 2006.

The issue of a potential health risk to personnel involved in maintenance tasks following a bird strike has been discussed with bio-safety specialists at the World Health Organization and the following general measures are recommended:

- Wear disposable gloves.
- If body contact is unavoidable while cleaning the engine, wear a disposable coverall.
- Do not use air or water under pressure to clean the part of the aircraft that was hit by the bird.
- Remove the bird remains and put them in a plastic bag.
- Do not touch face, eyes, nose, etc. with your gloves.
- Remove the gloves and the disposable coverall (if used) and put them in the same plastic bag as the remains and seal the bag.
- Dispose of the bag as for normal garbage.
- Wash hands thoroughly with soap and water.

The US Centre for Disease Control and Prevention (CDC) recently issued more detailed guidelines for bird strike in "affected areas". These guidelines can be consulted on:

http://www.cdc.gov/travel/other/avian_flu_ig_airline_bird_collisions_2006.htm



Major international transport conference for 2007

Wednesday 25 – Friday 27 July 2007
Christchurch Convention Centre, Christchurch, New Zealand

Conference Announcement and Call for Papers

Sustainability, Integration, Economic Growth, Cars, Trucks, Trains, Planes, Boats, Buses, Bikes, Freight and People – Where to from here?

This important international conference is promoted and sponsored by the NZ Government, transport sector agencies, LGNZ, and the transport industry.

The conference is about the future: the next 50 years and beyond. It will examine strategic directions in transport and address the key questions: *where are we now, where are we going and how do we get there?* It will cover all transport modes – road, rail, marine, air. Overseas participants and presenters are especially welcome. It will also feature a major Trade Display.

For further information go to www.transport07.co.nz, or contact
Lynette Walsh, Conference Secretariat,
Email: lynette@linkandlearn.co.nz or Phone: +64 6 758 1939.



Dealing with FOD at Auckland Airport

If you don't keep on top of FOD, it will get on top of you.

By Keith Butler, Auckland International Airport Limited Airfield Controller

Auckland International Airport Limited (AIAL) takes a rigorous approach to dealing with foreign object debris (FOD) in the sure knowledge that round-the-clock vigilance is the only way of dealing with this potential hazard to aircraft.

Almost four years ago, Bob Parkinson, the airfield operations manager at AIAL, felt that a new approach should be used when dealing with FOD issues. As it is a matter that should concern everyone at the airport, he felt it should be dealt with by strategic, operational, and educational approaches.

As part of its operating requirements under ICAO Annex 14, AIAL has the ultimate responsibility to ensure that all movement and manoeuvring areas are kept free from debris that may damage aircraft structures, or engines, or impair the operation of aircraft systems. AIAL should also have a process and the necessary procedures in place to adequately control those measures. Additionally, a coordinated approach by all organisations at the airport would give more effective control over FOD issues.

When the large runway reconstruction project and international terminal building upgrade was about to start, it was felt essential to put extra steps in place to reduce potential additional instances of FOD on the taxiways and aprons.

A new FOD Task Force was set up, chaired by AIAL apron tower staff, together with members of the two main aircraft handling agencies, Air New Zealand and Menzies Aviation, with other members co-opted as necessary.

FOD Task Force

Airfield officer Cliff Jones and I accepted the challenge on behalf of AIAL to set things in motion. Norm Hogwood, the Australasian Aviation Ground Safety Council's (AAGSC) spokesperson on FOD issues, provided his services. Gavin Hobbs, Air New Zealand ground safety investigator; Colin Montrose, Air New Zealand OSH representative, and George Corbett, Menzies Aviation training and safety manager, made up the inaugural team.

Bob acted as a consultant to the group, giving access to the higher level OSH committee at general manager level. The task force also reports to this forum.

New FOD Policy

Industry guidelines supplied by the AAGSC proved a good source of reference for writing a new AIAL FOD policy. A draft policy was composed, and circulated among the task force members, before being adopted by AIAL.

The policy revolves around the following paragraph, taken from the AAGSC FOD Strategy Paper:

Research in the USA suggests that those airports that support a dedicated FOD Committee/Forum tend to perform better than those who do not but will often pay lip service to FOD matters by having the issue raised as a standing agenda item to various committee meetings.

Training and continual reiteration of the consequences of FOD issues appears to be the best way forward, rather than sanctions. If all else fails, however, some form of sanction may be necessary.

FOD can be a serious threat to aviation safety, as the devastating Concorde incident in France showed. Furthermore, there are potentially large repair costs, together with additional revenue and service losses. An engine rebuild of a FOD-damaged B737 engine can cost around NZ\$1,000,000.

The task force meets every six to eight weeks, with additional meetings as necessary. Every third meeting takes the form of a FOD survey. Members tour all potential FOD sites. This enables them to get a first-hand view of FOD issues, offering advice to staff, or taking appropriate action. These 'walk rounds' have proved to be highly effective.

Measures to Combat FOD

AIAL has a number of measures available to combat FOD, in addition to those undertaken by the airline ground handling agents. For example, prior to aircraft arriving, engineers or their colleagues carry out a FOD walk on the relevant aircraft stand.

Those measures include:

Nightly Apron Sweeping

A contracted company using a mechanical sweeper is available every night, 365 days per year. Prior to the inception of the new task force, the International Terminal



Building stands were swept on a random basis. Now every available stand, remote stand, and the inner pier road are swept every night, together with 'hotspots' identified by airfield staff on a daily basis. The driver holds a Stage 2 Airside Driving Permit meaning the vehicle can be driven on the movement area.

Mini Sweeper

Almost two years ago, AIAL contracted one of their most effective combatants of FOD, the new grounds overseer Peter Robinson. A horticulturist by trade, Peter has become a proactive member of the task force. He instituted the purchase of our own mini sweeper which is operated by the AIAL grounds people. He has set up an improved sweeping policy to supplement that of the contract sweeper. The unit is able to get right into those inaccessible areas as it is only just over a metre wide. The vehicle also has a vacuum arm that the driver can operate from his seat to get into awkward corners.



Mii Sadaraka operating the mini sweeper.

FOD 'Boss'

Soon after the task force began, a FOD 'Boss' was purchased. This tow-behind sweeping tool has proved to be a highly efficient means of removing FOD. Just point the vehicle, drive over the FOD and 'voila', the FOD is gone. The unit can be towed by all airfield operations vehicles and is regularly used by the team of airfield officers and part-time safety officers who oversee airfield projects.



The 'Boss' was used extensively in the final stage of the four-year runway rehabilitation. The outboard engines of large aircraft were blowing loose material onto the taxiways, but two or three runs with the 'Boss' picked everything up.

It was so successful that a second unit was purchased, together with a joining bar so that both units can be towed side by side.

The units are stored flat at key locations around the airport, where they can be rapidly attached to vehicles, rather than stored in an out-of-the-way location.

FOD Bins

AIAL has a policy of installing highly visible, yellow FOD bins. Grounds overseer Peter Robinson reckons if there is a bin within walking distance, and readily visible from the FOD find, there are more chances that it will be recovered. He purchased a large number of bins, and with Cliff Jones devised a programme of placing them at key locations around both the international and domestic terminals, including remote stands, baggage halls, and walkways. They are emptied regularly.



Magnetic Sweeper

In consultation with a local supplier, Cliff Jones has designed a magnetic sweeper that can be used by apron staff.

The cost of the new unit equated to the previous annual sweeping contract, so it was very cost effective, and is available for use far more regularly. Using trained airfield safety officers, a sweep can now occur on a weekly or as-required basis, giving a more intensive sweep. The items recovered are weighed and the results turned into graphical format for comparison with previous surveys. If necessary, a further sweep of 'hotspots' can take place. In addition, the articles found are checked with a view to locating the contributor for remedial action.

The unit is made from two very strong magnetic units (1.2 m x 300 mm x 40 mm) built into a towing unit that can be raised or lowered by winch.

It is a permanent magnetic system with a life of 10,000 years. Due to its power, special rules have been introduced. For example, watches, mobile phones, credit-type cards with a

Continued over...



... continued from previous page

magnetic strip, and Airport IDs have to be kept half a metre away. The unit is not parked where it could affect magnetic equipment in aircraft.

Digital Cameras

Airfield operations vehicles are now all equipped with digital cameras. By forwarding a photograph of FOD finds to me, I can rapidly refer the matter to the right person for rectification.

AAGSC Initiative

The AAGSC is currently engaged in its latest airport safety campaign in which all matters concerning aviation safety, including FOD issues, are communicated through strategically placed banners.

The banners are moved on a regular basis around the airport. Then, at the AAGSC meetings, the banners are swapped from airport to airport. Peter Kennedy, LSG Skychefs' representative on the AAGSC, says the posters have proved popular and effective, and the message is getting through.

Training

There is no doubt that prevention is by far the most effective tool in the fight against FOD. Most of the staff who work airside at Auckland International Airport attend an initial airfield driving course. This includes a presentation on FOD and its consequences. Other agencies also include FOD as a subject in their induction courses, and Cliff and I provide input to these when required. Gavin Hobbs also includes regular FOD initiatives in the Air New Zealand safety bulletin.

In Conclusion

Bob Parkinson says, "AIAL is making tremendous inroads into FOD reduction. The task force is a committed proactive team. The membership has grown to include all the major players at the airport. The only way ahead is to continually monitor the situation and turn opportunities into results. We have a good safety record and cannot afford to be complacent."

We're sharing our story so that it may help other airports with their FOD programmes. ■



Autopilot Overload

The following article is based on a recently-released TAIC aviation occurrence report (05-006) and summarises the accident involving a Metro III ZK-POA during a night freight flight. While there are several lessons that can be inferred from the report, the main point of this article is to highlight the (mis)use of an autopilot to generate or counteract opposing control forces.

The Accident

On the night of Tuesday 3 May 2005, a Fairchild-Swearingen SA227-AC Metro III was on a freight flight between Auckland and Blenheim, when it suffered an upset that developed rapidly into a spiral dive. The crew did not regain control before the aircraft broke up from overstressing, and fell on farmland near Stratford. Both crew members were killed, and the aircraft and cargo were destroyed.

Preceding Events

The flight was scheduled to leave Auckland at 2100, but freight loading was not completed until 2115. The crew requested additional fuel, and presumably to expedite the already late departure, instructed the refueller to put the entire 570 litres (about 1000 pounds) in the left wing tank.

The Metro fuel system comprises left and right wing tanks, which feed directly to their respective engines. The tanks are independent of each other in normal operations, but if lateral fuel balancing is required, or if all fuel is required for single-engine operations, they can be interconnected by a 50 mm diameter crossflow tube. A motor-driven crossflow valve isolates the tanks when in its normally-closed position, and opening

it allows gravity equalising of the fuel levels in the left and right tanks – there are no crossfeed pumps in the system.

The aircraft flight manual requires the crossflow valve to be closed in the before-start checks, and permits a maximum fuel imbalance of 200 pounds for takeoff and landing when the total fuel is more than 2000 pounds. The operator's standard operating procedures required less than a 200-pound imbalance before start. For correcting an in-flight fuel imbalance, the operator's usual but unpublished technique was to open the crossflow valve and fly with the fuller wing tank just higher than the normal wings-level attitude. This was normally achieved with "crossed controls", with the roll input by aileron, and yaw opposed by rudder. As no written procedure existed, different pilots employed differing techniques, with greater or lesser control input.

Once the refuel was completed, the crew started engines and taxied the aeroplane for takeoff. The flight data recorder showed that during taxi, the aircraft made a left turn through about 320° in 17 seconds, the significance of this manoeuvre being that it was a known method of expediting fuel transfer. Takeoff was about 2136; flight-planned level was FL180 (18,000 feet pressure altitude), but on reaching FL180, the

crew requested, and were cleared to, FL220 because of turbulence.

About 2212, after the aeroplane had levelled off and the crew had completed cruise checks, the captain said, "We'll just open the crossflow again...sit on left ball and trim it accordingly". He repeated the instruction five times to the first officer, telling him to, "Step on the left pedal, and just trim it", and, "Get the ball out to the right as far as you can...and just trim it". The autopilot had been engaged earlier in the flight, and there was nothing to suggest that it had been disengaged for this fuel balancing procedure. When left rudder was applied, the aircraft would have yawed left and tried to roll left as a result of normal aerodynamic yaw/roll coupling. The autopilot would have applied right aileron control to counter this rolling tendency, and would also have tried to maintain the heading or course (whichever mode was selected) by applying more right aileron so that the aircraft flew right wing down in a straight sideslip to the right.

Within two minutes, the control forces required to maintain this state exceeded the authority of the autopilot, and the aeroplane departed from controlled flight. This commenced with a gradual left turn, which rapidly became steeper, the aeroplane rolling rapidly into a steep spiral dive to the left. The indicated airspeed increased from the cruise figure of 172 knots to almost 300, the load factor increasing to a maximum of +4.2g. (The operating limits are

227 knots indicated airspeed at 22,000 feet, and flaps-up load factor limits are +3.02, -1.21g.) During the recovery attempt, both wings failed in overload.

Autopilots Are Only Inhuman

Autopilots come in various shapes and forms, but in general, they are limited in both control travel and control force. They can be physically overridden by pilot control input, and this can be achieved by the addition of a slipping clutch to the servo motor – the motor drives through the clutch, which is preset to the design breakaway force value. Autopilots can be disengaged manually by more than one means, or they may disengage automatically in the event of a malfunction or when certain parameters are exceeded.

Limitations included in the Flight Manual Supplement for the Collins FCS-80 Flight Control System (as fitted to ZK-POA) are, "Do not engage autopilot if airplane is out of trim", and under the sub-heading, "For gross weight from 14,500 pounds to 16,000 pounds", it says, "Maximum altitude for autopilot operation is 20,000 feet pressure altitude". The calculated takeoff weight on the accident flight was 15821 pounds.

A reasonable inference from the first limitation quoted would be that if the aircraft is in trim and on autopilot, then it would be wise to leave it that way.

In this case, had the flying pilot disengaged the autopilot before setting up the out-of-trim condition, he would have had full control of the aircraft, as well as tactile feedback through the flying controls. The departure from controlled flight and subsequent evolutions probably would not have occurred. As for the second limitation, the TAIC report concluded that although the crew should have disengaged the autopilot on climb through 20,000 feet, the non-observance of the limitation probably did not affect its performance or automatic disengagement.



Resulting Safety Actions and Recommendations

Soon after the accident, the operator issued a Notice to Pilots, requiring that refuelling be conducted so as to achieve a balanced fuel load before start; amended the Metro checklist to require "crossflow closed" on Lineup and Approach checklists; and made an addition to the autopilot procedures section of the Metro training manual, detailing the procedure to be followed in the event fuel balancing was required. The latter stipulated that the autopilot and yaw damper be disengaged prior to use of the crossflow switch.

TAIC recommended that the FAA, through the CAANZ, amend the Aircraft Flight Manual of the Metro and associated types to include: a limitation and caution that the autopilot and yaw damper be disconnected while in-flight fuel balancing is done; and a procedure for in-flight fuel balancing. ■



Director's Awards 2006



The Director of Civil Aviation Awards are presented each year to an individual and an organisation with an overwhelming safety ethos. The winners have gone out of their way to do the right thing. Their actions have directly resulted in safety standards being raised, and they have encouraged others in the aviation industry to do the same.

The 2006 Organisation Award went to the Northland Emergency Services Trust (NEST). This organisation operates two IFR equipped Sikorsky S76 twin engine helicopters, dedicated to emergency medical services (EMS) and search and rescue operations. Based in Whangarei, they service the Northland region, offshore islands, and the maritime community.

Presenting the award at the Aviation Industry Association awards dinner on 28 July 2006, Director of Civil Aviation, John Jones, said NEST was extraordinary.

"They were issued their Part 119/135 certificate in 2001, and every year since then their quality index score has exceeded 80 percent. That's exceptional.

"NEST made a commitment to multi-engine IFR operations from the start and have expanded their operations consistent with this philosophy. They always fly with two crew on IFR and VFR operations. They have committed to the costs of training pilots up in their own IFR environment, rather than poaching experienced IFR pilots from other operators," John Jones said.

NEST also runs an ongoing training programme, sending their pilots to Flight Safety International in the United States for dedicated Sikorsky

S76 IFR simulator training every two years. The Director noted that NEST has consistently made time for crews to attend every available EMS safety forum held in Australia and New Zealand.

"Chief Pilot, Peter Turnbull also co-ordinated an industry-led safety forum for EMS flight and medical crews in April this year. Attendees were encouraged to raise safety concerns from their own experiences, and international EMS accident and incident trends were studied to see what could be learned from them, to the benefit of New Zealand," John Jones said.

NEST also runs a helicopter safety education programme at all the hospitals and retrieval areas they service, as well as for other emergency services.

Peter Turnbull, who accepted the award on behalf of NEST, said, "We are very lucky to have an administrative trust that puts no price on safety, in an environment where it does cost money. If something is required for safety, we know it's a given."

Peter started in aviation in 1969 and says the concept of safety has evolved a great deal in that time.

"It's not just about pointing the finger at the person at the end of the line anymore. Now we recognise how organisational culture and management affect safety.

"We're a small team with just five pilots and an office administrator, plus our trust management team, who work almost full-time for nothing. Achieving this award was a real team effort, and a career highlight for me," Peter Turnbull says. He believes NEST runs as well as it does because of the efforts of a vast army of supporters.

"There's a bunch of hard working people behind the scenes. This award acknowledges their efforts as well."

The Individual Award went to Richard McKay, an engineer from Flightline Aviation, Dunedin. As an apprentice in the early 1970s, Richard worked on engine and propeller overhaul, and regular maintenance, but it was airframe rebuilding that became his passion.



John Jones and Richard McKay (right)

John Jones said Richard's attention to detail and workmanship is recognised throughout the aviation community.

"In the earlier years, Richard worked with very experienced structures tradesmen, such as Ted Walters, and licensed engineers, such as Tom and Ray Mulqueen. These well-known engineers set high standards of maintenance and customer relations, and he was quick to adopt their ethics. Richard's work adds a level of quality to rebuilds that stands out today," John Jones said.

Richard says this early training set him on a path for his working life, "Our philosophy, right from day one, is 'do it once, do it right'. Safety comes first. We're lucky though, we've got a lot of operators who understand that, which makes it a lot easier for us."

As for Richard's thoughts on winning, "I was totally surprised. I couldn't believe it when the Director read my name out, but I feel very, very privileged. There is



John Jones and Peter Turnbull (right)

a great team of people working here at Flightline. I couldn't have got my award without them."

The Civil Aviation Authority Flight Instructor Award went to Mark Carter, Massey University School of Aviation's Chief Flying Instructor. Presenting the award, John Jones described Mark as a "truly professional aviator".

"Mark runs a very busy training schedule, with many instructors working under his supervision. His management skills have been very apparent to our auditors, and of obvious benefit to Massey. Mark keeps abreast, not only of new technology in aviation, but also of teaching and learning methods and research," John Jones said.

Mark says the country's main training organisations are working toward offering flight instructors a salary that is comparable to the airline industry.

"If we want people in the profession long term, building up experience and becoming A-Cats, they need to be earning enough to have families and pay mortgages. They need to be taking a pay cut to go and do the internal turbo-prop jobs."

Mark said receiving the award meant a lot, "It is recognition from my peers, and from within the CAA that we are striving to achieve something beyond the norm. It was a bit of a surprise to hear that I'd been selected, I must admit."

Nominations for the Director's Awards are called for early each year, and are encouraged from anyone who knows of an individual or organisation that goes the extra mile for aviation safety. ■



John Jones and Mark Carter (right)

New Products

Mountain Flying

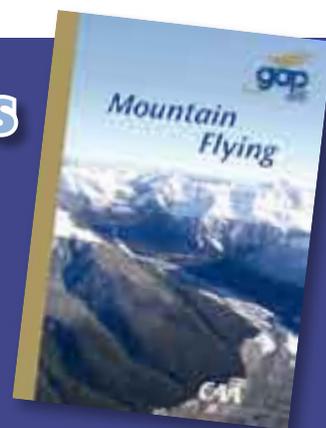
A revised edition of the Good Aviation Practice (GAP) booklet, *Mountain Flying*, is now available.

No matter where you fly in New Zealand, at some stage your flight will be affected by the mountainous terrain that makes up over half of this country. When flying in this type of terrain, the forces of nature exert a greater influence, and pilots who operate regularly among the mountains have developed a special set of skills, knowledge, and flying techniques to help them survive.

These skills are applicable whether you are among the rugged high peaks of the Southern Alps, the lower

foothills, or the more rolling bush-covered terrain found in the North Island. Wherever there are ridges and valleys, be they 2000 feet or 10,000 feet amsl, the basic principles in *Mountain Flying* will apply.

This GAP booklet is available free from most flight training schools and aero clubs, from your local Field Safety Adviser, or you can request copies by email: info@caa.govt.nz.



How to get Aviation Publications

Rules, Advisory Circulars (ACs), Airworthiness Directives

All these are available for free from the CAA web site, www.caa.govt.nz. Printed copies can be purchased from 0800 GET RULES (0800 438 785).

AIP New Zealand

AIP New Zealand Vols 1 to 4 are 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).

Planning an Aviation Event?

Do you have an event such as an airshow, air race, rally or major competition coming up soon? If so, you need to have the details published in an *AIP Supplement* to warn pilots of the activity in a timely manner. The information should be submitted to the CAA with adequate notice. (Refer to AC 91-1 *Aviation Events*.)

Please send the relevant details to the CAA (ATS Approvals Officer or AIP Editor) **at least** one week before the appropriate cut-off date indicated below.

Supplement Cycle	Supplement Cut-off Date (with graphic)	Supplement Cut-off Date (text only)	Supplement Effective Date
06/13	12 Oct 2006	19 Oct 2006	21 Dec 2006
07/1	26 Oct 2006	2 Nov 2006	18 Jan 2006
07/2	23 Nov 2006	30 Nov 2006	15 Feb 2006



Made in New Zealand

Two New Aircraft Type Certificates

Alpha 160A. Photo: Waikato Times

The CAA has issued a Type Certificate to Micro Aviation for the Bantam B22J. The CAA has also issued a Type Certificate to Alpha Aviation for the Alpha 160A aircraft, which replaces the existing French Type Certificate.

Both companies are based in Hamilton.

The issuing of these certificates is the culmination of months of hard work for the parties involved.

The CAA has issued only fifteen Type Certificates explains David Gill, CAA Team Leader Airworthiness, "Each Type

Certificate requires us to spend up to 2000 hours checking and making sure that the aircraft meets a comprehensive set of airworthiness design requirements."

These requirements are stipulated in Part 21 *Certification of Products and Parts*.

When a Type Certificate is issued it certifies that the aircraft has not only met the design criteria, but also that it has undergone an extensive testing programme. This testing programme is in two parts.

Firstly, structural testing simulates some

of the forces that could be put on crucial areas of an aircraft during routine and non-routine operations. The second part involves an extensive flying programme, during which test flights conclude that the aircraft and components are reliable and function correctly.

Once an aircraft model is issued with a Type Certificate, each aircraft manufactured can be issued with an Airworthiness Certificate in the standard or restricted categories, providing it meets the requirements. These aircraft can be used for hire or reward operations.



Undercarriage 'drop testing' is part of the certification process. The undercarriage of the Bantam B22J is constructed of fibreglass.



A test weight of 450 kg is dropped from a height of 224 mm to simulate load forces on the undercarriage.



Bantam B22J



The Bantam B22J undercarriage.

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The issue of these certificates is a clear sign that CAA is working well with industry. "Our close working relationship with CAA was instrumental in the certification of the B22J," says Max Clear, Director of Micro Aviation.

Tony Schischka, Quality Manager of Alpha Aviation believes that, "through the whole certification process we have

received nothing but help and positive encouragement from CAA, which has led to the quick certification time of around a year."

Additional information on aircraft Type Certificates and modifications can be found in the May / June 2006 edition of *Vector*. ■



Graeme Edwards (left) and Richard Sealy (centre) of Alpha Aviation, with Peter Gill, CAA (right), at the Type Certificate presentation. Photo courtesy of Colin Zuppich.

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT
(0508 222 433)

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

Aviation Safety & Security Concerns

Available office hours
(voicemail after hours).

0508 4 SAFETY
(0508 472 338)

info@caa.govt.nz

For all aviation-related safety and security concerns

OCCURRENCE BRIEFS

LESSONS FOR SAFER AVIATION

The content of *Occurrence Briefs* comprises notified aircraft accidents, GA defect incidents, and sometimes selected foreign occurrences, which we believe will most benefit operators and engineers. Individual accident briefs, and GA defect incidents are available on CAA's web site www.caa.govt.nz. Accident briefs on the web comprise those for accidents that have been investigated since 1 January 1996 and have been published in *Occurrence Briefs*, plus any that have been recently released on the web but not yet published. Defects on the web comprise most of those that have been investigated since 1 January 2002, including all that have been published in *Occurrence Briefs*.

ACCIDENTS

The pilot-in-command of an aircraft involved in an accident is required by the Civil Aviation Act to notify the Civil Aviation Authority "as soon as practicable", unless prevented by injury, in which case responsibility falls on the aircraft operator. The CAA has a dedicated telephone number 0508 ACCIDENT (0508 222 433) for this purpose. Follow-up details of accidents should normally be submitted on Form CA005 to the CAA Safety Investigation Unit.

Some accidents are investigated by the Transport Accident Investigation Commission (TAIC), and it is the CAA's responsibility to notify TAIC of all accidents. The reports that follow are the results of either CAA or TAIC investigations. Full TAIC accident reports are available on the TAIC web site, www.taic.org.nz.

ZK-GRE, Schleicher ASW 27, 17 Dec 03 at 13:40, Manawaru. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence nil, age 55 yrs, flying hours 1972 total, 85 on type, 18 in last 90 days.

The pilot was on a local soaring flight from Matamata Aerodrome when he advised that he intended to complete an outlanding to the south of Te Aroha. The glider was seen on the landing approach to suddenly pitch down before striking the ground. The first rescuers on the scene found the pilot had been killed in the accident. A full accident report is available on the CAA web site.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 03/3668](#)

ZK-HSF, Bell (Garlick) UH-1B, 23 Apr 04 at 08:50, nr Mokoreta. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, ferry/positioning. Pilot CAA licence CPL (Helicopter), age 48 yrs, flying hours 3780 total, 566 on type, 55 in last 90 days.

The Helicopter Services UH-1B helicopter ZK-HSF was on a ferry flight to Gore to facilitate maintenance work. En route near Mokoreta a main rotor blade separated, the helicopter broke up and fell to the ground. The pilot, the sole occupant, was killed and the helicopter was destroyed. The accident resulted from fatigue failure of a tension-torsion (TT) strap, a critical rotor hub component. The fatigue cracking had probably been initiated by an unreported rotor overspeed event.

Main sources of information: Abstract from TAIC Accident Report 04-003.

[CAA Occurrence Ref 04/1354](#)

ZK-DHX, Cessna A188B, 4 Sep 04 at 15:00, Gwavas Airstrip. 1 POB, injuries nil, aircraft destroyed. Nature of flight, agricultural. Pilot CAA licence CPL (Aeroplane), age 38 yrs, flying hours 3300 total, 1400 on type, 80 in last 90 days.

During takeoff the pilot experienced a gust of wind on the tail; this resulted in the aircraft settling down on the topdressing strip about 150 metres from the end of the strip, which had a boundary fence. The aircraft hit the fence and then went over a 50-metre bank before coming to rest in a creek bed.

Main sources of information: Accident details submitted by pilot plus further enquiries by CAA.

[CAA Occurrence Ref 04/2822](#)

ZK-GIX, Rolladen-Schneider LS 1-f, 12 Jan 05 at 16:00, Omarama Saddle. 1 POB, injuries 1 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence nil, age 44 yrs, flying hours 273 total, 107 on type.

The pilot was on a private flight in the company of another glider, operating in the locality of Omarama. The conditions of the day indicated that the pilot would be making use of thermals and some ridge soaring. The glider had struck the ridge, close to the summit, in an approximately straight and level attitude. The wreckage of the glider was sighted within minutes of the accident, by the accompanying glider. The first people to arrive at the accident scene found the pilot had been killed during the impact. A full accident report is available on the CAA web site.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 05/31](#)

ZK-MHS, Lancair 360, 14 Jan 05 at 16:00, Tauranga. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 59 yrs, flying hours 286 total, 93 on type, 24 in last 90 days.

The pilot landed the aircraft fast and flat in gusty conditions. The aircraft bounced twice with increasing amplitude. After the second bounce, the aircraft touched down nose wheel first and the nose wheel collapsed before the aircraft skidded to a stop.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 05/39](#)

ZK-NIK, Micro Aviation B22 Bantam, 19 Mar 05 at 18:00, Horotiu. 1 POB, injuries nil, damage minor. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 51 yrs, flying hours 225 total, 122 on type, 3 in last 90 days.

The pilot flew the aircraft over a possible landing area at about 50 feet then applied power to climb over trees at the end of the strip. Insufficient power was available to avoid a collision with the trees.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 05/859](#)

ZK-FVG, Micro Aviation B22 Bantam, 9 Apr 05 at 09:30, Pikes Point Ad. 2 POB, injuries nil, damage substantial. Nature of flight, training dual. Pilot CAA licence PPL (Aeroplane), age 54 yrs, flying hours 405 total, 63 on type, 17 in last 90 days.

The instructor took control from the microlight student, who was undershooting on a glide approach. The instructor was unable to prevent the aircraft striking the runway threshold and sustaining substantial damage.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 05/1048](#)

ZK-POA, Fairchild SA227-AC, 3 May 05 at 22:14, nr Stratford. 2 POB, injuries 2 fatal, aircraft destroyed. Nature of flight, freight only. Pilot CAA licence ATPL (Aeroplane), age 43 yrs, flying hours 6500 total, 2750 on type, 130 in last 90 days.

Fairchild-Swearingen SA227-AC Metro III ZK-POA, operated by Airwork (NZ) Limited, was on a night air transport freight flight with 2 crew and 1790 kilograms of cargo when it suffered an in-flight upset which developed into a spiral dive. The crew did not recover control and the aircraft became overstressed and broke up, to fall in pieces about rural farmland near Stratford. Both crew were killed and the aircraft and cargo destroyed. The crew was balancing fuel between tanks, flying the aircraft at an excessive sideslip angle with the rudder input trimmed, while on autopilot. The autopilot capability was exceeded and it disengaged, precipitating the upset.

Main sources of information: Abstract from TAIC Accident Report 05-006.

[CAA Occurrence Ref 05/1394](#)

ZK-HZG, Hughes 369E, 13 May 05 at 12:50, Port Levy. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence CPL (Helicopter), age 42 yrs, flying hours 5550 total, 855 on type, 71 in last 90 days.

During a sling operation the helicopter was picking up ground

crew from the side of a hill. While departing, the chain flung up into the tail rotor, which separated from the helicopter. The pilot performed an emergency landing at the bottom of the hill.

Main sources of information: Accident details submitted by pilot and operator.

[CAA Occurrence Ref 05/1556](#)

ZK-TAX, Cessna 172R, 4 Jul 05 at 11:20, Wairoa River mouth. 2 POB, injuries 2 minor, damage substantial. Nature of flight, training dual. Pilot CAA licence CPL (Aeroplane), age 28 yrs, flying hours 2580 total, 1700 on type, 60 in last 90 days.

The dual flight instruction detail was a low flying training exercise in the Ardmore low flying area. The aircraft was configured in the bad weather/poor visibility configuration. During the exercise, the instructor took control of the aircraft to carry out an evasive manoeuvre in order to avoid a flock of birds. The aircraft subsequently stalled and because of insufficient height could not be recovered. The pilot stated that his primary concern was to maintain wings level and reduce impact speed and angle. The aircraft was ditched in the low flying area. Both instructor and student vacated the aircraft with minor injuries.

Main sources of information: Accident details submitted by operator plus further enquiries by CAA.

[CAA Occurrence Ref 05/2129](#)

ZK-FGS, Cessna 182R, 7 Aug 05 at 12:00, North Canterbury. 2 POB, injuries 2 fatal, aircraft destroyed. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 60 yrs, flying hours 1000 total, 1000 on type, 18 in last 90 days.

During a climbing turn in an area where poor horizon and surface definition probably existed, the pilot lost control of the aircraft, probably whilst spatially disorientated, at an altitude lower than that required to permit a successful recovery. A full accident report is available on the CAA web site.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 05/2471](#)

ZK-HGI, Aerospatiale AS 350BA, 17 Aug 05 at 11:45, Franz Josef Glacier. 8 POB, injuries nil, damage substantial. Nature of flight, transport passenger A to A. Pilot CAA licence CPL (Helicopter), age 46 yrs, flying hours 1644 total, 315 on type, 63 in last 90 days.

The pilot of ZK-HGI, a Eurocopter AS350 BA helicopter, flew a party of 4 adults and 3 children to a snowfield above Franz Josef Glacier, in South Westland. When approaching to land, the helicopter started to drift right, the skids caught in the soft snow and the helicopter rolled onto its right side. The pilot and passengers were able to vacate the helicopter and, other than some bruising, were not injured. The accident was caused by the pilot unknowingly entering white-out conditions as he approached to land on the snow. Recent snow had obscured markers put in the snow to assist visual reference. Therefore, he did not detect the lateral movement of the helicopter as it was about to land. The pilot's selection of approach heading further compounded the loss of visual references.

Main sources of information: Abstract from TAIC Accident Report 05-009.

[CAA Occurrence Ref 05/2582](#)

ZK-HPO, Robinson R22 Beta, 18 Aug 05 at 15:00, Molesworth Station. 2 POB, injuries nil, aircraft destroyed. Nature of flight, other aerial work. Pilot CAA licence CPL (Helicopter), age 31 yrs, flying hours 1817 total, 1272 on type, 47 in last 90 days.

While a passenger was disembarking, the main rotor struck the ground, caused by the change in C of G.

Main sources of information: Accident details submitted by pilot plus further enquiries by CAA.

[CAA Occurrence Ref 05/2627](#)

ZK-HKU, Aerospatiale AS 350D, 11 Nov 05 at 09:30, Christchurch Show Grounds. 5 POB, injuries nil, damage substantial. Nature of flight, transport passenger A to B. Pilot CAA licence CPL (Helicopter), age 29 yrs, flying hours not stated.

The operator reported that the helicopter was carrying out its first flight of the day when the pilot's boot caught the pedal. The helicopter completed one and a half rotations before landing. Serious damage was found on the tail boom.

Main sources of information: Accident details submitted by pilot and operator.

[CAA Occurrence Ref 05/3625](#)

ZK-HPR, Robinson R22 Beta, 17 Dec 05 at 20:30, Mussel Point. 2 POB, injuries 2 minor, aircraft destroyed. Nature of flight, private other. Pilot CAA licence CPL (Helicopter), age 37 yrs, flying hours 850 total, 700 on type, 207 in last 90 days.

The pilot was carrying out joyrides along the beach from a local community gala, when it was seen to climb, turn, and dive into the beach.

Main sources of information: Accident details submitted by pilot plus further enquiries by CAA.

[CAA Occurrence Ref 05/4114](#)

ZK-HKK, Robinson R22 Beta, 15 Jan 06 at 13:00, Clarence Valley. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Helicopter), age 55 yrs, flying hours 1366 total, 626 on type, 70 in last 90 days.

The helicopter was moving cattle. A crew member stood on the skid to off-load a dog, and the helicopter then tipped over.

Main sources of information: Accident details submitted by pilot and operator.

[CAA Occurrence Ref 06/12](#)

ZK-JMU, Gerald Thornhill TS I (Sopwith Camel Replica), 21 Jan 06 at 16:00, Masterton Ad. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 43 yrs, flying hours 12730 total, 425 on type, 20 in last 90 days.

While taxiing, the aircraft was tipped upside down by a sudden wind gust/dustdevil. The pilot had attempted to regain control by applying full power, but this was unsuccessful.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 06/347](#)

ZK-FMU, Piper PA-23-250, 13 Apr 06 at 13:30, Napier Ad. 2 POB, injuries nil, damage substantial. Nature of flight, training dual. Pilot CAA licence CPL (Aeroplane), age 56 yrs, flying hours 18800 total, 500 on type, 100 in last 90 days.

The aircraft was carrying out dual training circuits. When the student selected the undercarriage down the gear selector handle broke off. After consultations with the chief engineer, the pilot decided to proceed with a wheels-up landing at Napier. After several low passes, the aircraft was landed wheels-up on Runway 07. Investigation revealed the landing gear selector handle failed at the bend radius as described in Piper SB 635. This is a known weak area, and recently there have been two other similar defects notified to the CAA. Airworthiness directive DCA/PA23/155A requires an inspection every 100 hours or replacement with a stronger part. The inspection part of the AD had been carried out 4.4 hours before the accident. It is very difficult to carry out the inspection as detailed in the Piper SB 635 as accessibility is extremely difficult. It is recommended the stronger landing gear selector lever P/N 761-213 be fitted.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 06/1319](#)

ZK-SDQ, Neico Lancair 235, 13 May 06 at 09:00, Whangarei Ad. 1 POB, injuries nil, damage substantial. Nature of flight, private other. Pilot CAA licence PPL (Aeroplane), age 39 yrs, flying hours 306 total, 24 on type, 6 in last 90 days.

A NOTAM was in place for work in progress on the sealed taxiway at Whangarei Aerodrome, so the pilot taxied onto the grass taxiway. Here the aircraft's nosewheel sank into a recently refilled trench. This resulted in a propeller strike, causing damage to the engine and propeller.

Main sources of information: Accident details submitted by pilot.

[CAA Occurrence Ref 06/1786](#)

ZK-FJS, Piper PA-38-112, 2 Jul 06 at 16:45, Weber. 2 POB, injuries nil, damage substantial. Nature of flight, training dual. Pilot CAA licence PPL (Aeroplane), age 30 yrs, flying hours 850 total, 471 on type, 96 in last 90 days.

The aircraft was climbing out in bad weather configuration when the engine did not respond to the extra power required. The instructor took control and carried out the trouble checks; when carburettor heat was applied the engine momentarily gained power and then began to die. A forced landing was then carried out in the only paddock available. On the landing roll, due to the wet and boggy ground, the nose leg collapsed. The aircraft damage was limited to the propeller and firewall. Investigation into the engine power loss was carried out. The engine would start and run momentarily then die. The carburettor was changed and the engine ran normally. The carburettor was sent to an overhaul organisation for disassembly and investigation. Disassembly revealed in the float bowl a number of grass seeds and insects and a seed and insect in the main nozzle cavity. The foreign objects were removed, the carburettor flushed, reassembled and tested satisfactorily. The operator is modifying the run-up procedures to ensure where possible that they are carried out on a clean sealed area to prevent ingestion of grass seeds. It is also recommended that a fine stainless steel gauze mesh is fitted in the hot air inlet system.

Main sources of information: CAA field investigation.

[CAA Occurrence Ref 06/2451](#)

The reports and recommendations that follow are based on details submitted mainly by Licensed Aircraft Maintenance Engineers on behalf of operators, in accordance with Civil Aviation Rules, Part 12 *Accidents, Incidents, and Statistics*. They relate only to aircraft of maximum certificated takeoff weight of 9000 lb (4082 kg) or less. These and more reports are available on the CAA web site, www.caa.govt.nz. Details of defects should normally be submitted on Form CA005 or 005D to the CAA Safety Investigation Unit.

The CAA Occurrence Number at the end of each report should be quoted in any enquiries.

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

Aerospatiale AS 350BA

Power turbine #4 module

After the pre-takeoff checks had been conducted, the caution panel ENG CHIP LT illuminated. The engine was shut down and the engine magnetic particle chip detectors inspected; magnetic particles were found. Disassembly of engine #4 and #5 modules (power turbine) revealed #4 module rough when spun by hand. A bearing failure was suspected, so the engine was removed and returned to the manufacturer.

ATA 7250

CAA Occurrence Ref 05/3217

Cessna 172M

Lycoming O-360-A1A Governor to propeller oil pipe P/N 75167

The aircraft was on a scenic flight when an oil leak occurred, spraying oil on the windscreen and severely reducing forward visibility. Due to the leak getting worse and the possibility of an impending engine failure, a precautionary landing was carried out into a paddock. An engineering investigation revealed the external oil pipe from the governor to the propeller had cracked near the forward end attaching nut. This allowed high-pressure oil to spray on to the engine and windscreen. It was found the clips/clamps that were meant to secure the pipe, as detailed in Lycoming Service Bulletin No 488A and required by Airworthiness Directive DCA/LYC/182, were not fitted. TSI 74 hours, TSO 74 hours, TTIS 2839 hours.

ATA 8500

CAA Occurrence Ref 06/1

Piper PA-23-250

Collins TDR 950 Transponder

Airways reported that there was a large gap in radar tracking, which they suspected to be caused by a faulty transponder on the aircraft. The Maintenance Repair Organisation reported that the pulse width of the transmitted transponder signal required adjusting to bring it within limits. It is reported that Airways have recently upgraded a number of SSR facilities, and these are more sensitive to the parameters provided from aircraft transponder transmission signals.

ATA 3453

CAA Occurrence Ref 06/703

Piper PA-23-250

Piper PA-23-250E Flap spar P/N 17104-002

During a scheduled inspection, the LH wing flap spar P/No 17104-002 was found cracked at the inboard end. A possible cause could be the result of extending the flaps at airspeeds outside the flap operating limits. TSI 58 hours, TTIS 10283 hours.

ATA 2700

CAA Occurrence Ref 05/3857

Piper PA-28-161

Piper PA 28-161 Outlet pipes

During flight, the pilot noted that the CO indicator was darkened. On reporting this to operations, it was subsequently discovered that the pilot flying the aircraft the previous day had noticed this and also had been aware of fumes but had failed to report it. A detailed inspection of the exhaust system was carried out with nil defects found. The exhaust outlet pipes did not appear to be clearing the engine cowl so extensions were welded on. A carbon monoxide check was carried out and was satisfactory.

ATA 2140

CAA Occurrence Ref 05/3743

Robinson R22 Alpha

Spindle

During main rotor blade replacement in accordance with RHC R22 SB-94, the spindles were subjected to magnetic particle inspection in accordance with RHC component overhaul manual. A crack indication was discovered on the subject item. Despite rework of the surface as permitted by the overhaul manual, the indication remained. It is suspected the defect was caused by fretting of the journal against the spindle surface. The reporter's main concern was that this defect did not show up using dye penetrant inspection and therefore would not have been discovered during inspection in accordance with DCA/R22/18 and RHC R22 SB-60A. The spindle was replaced with a serviceable item. The aircraft owner, Robinson Helicopters and CAA New Zealand were informed. The unserviceable spindle was quarantined pending disposal instructions.

ATA 6220

CAA Occurrence Ref 06/350

Robinson R22 Beta

Lefthand Magneto

The engine was stripped for inspection. It was found that the lefthand magneto had a cam screw completely unscrewed and floating around the points area distributor gear. The stripdown followed an accident (05/3984) where the aircraft had suffered sudden power loss while hovering. TSI 233 hours.

ATA 7410

CAA Occurrence Ref 06/557

REPORT AIRCRAFT DEFECTS



The Dominion

This accident could have been prevented if previous discoveries of tailwheel cracking had been reported. Part 12 *Accidents, Incidents, and Statistics* tells you when you must report – but reporting all defect occurrences will help others as data is analysed and shared.

This includes:

- AMATEUR BUILT AIRCRAFT
- MICROLIGHTS
- GLIDERS
- HANG GLIDERS

IF SOMEONE CAN LEARN FROM IT – REPORT IT

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT
(0508 222 433)

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