March / April 2011

POINTING TO SAFER AVIATION

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Classic Fighters 2011

Alfa Tango Sierra – Under a Fiver

Standby Caller

Human Sling Loads

CAA
CIVIL AVIATION AUTHORITY OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

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Classic Fighters 2011

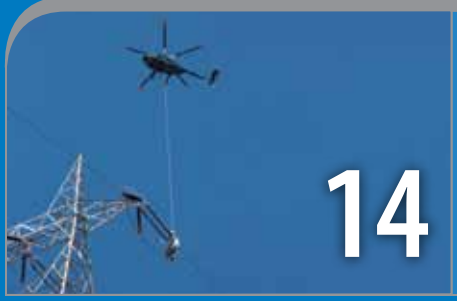
If you are heading to Classic Fighters this Easter, here is some important information to assist you in planning a safe flight to and from Omaka or Woodbourne.

Alfa Tango Sierra – Under a Fiver

We take you behind the scenes at the Flight Information Office and demystify some of the goings-on when you file a flight plan.

Standby Caller

For the first time in New Zealand airspace, an aircraft has been approved to allow passengers to use their cellphones on board during IFR operations. Here's why it is safe to use your phone on this aircraft.



Human Sling Loads

Human sling loads – there's more to it than just live cargo. There are rules requirements, equipment requirements, and above all, a very strong case for carrying out a robust risk assessment before conducting this type of operation.

In this issue...

Cover photo: Tim Sullivan in the cockpit of a Fokker Dr I Triplane owned and operated by The Vintage Aviator. The aircraft is a replica powered by a 165 HP Warner Radial engine. Photo courtesy of Tony Smith.

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Tel: +64 4 560 9400,
Fax: +64 4 569 2024,
Email: info@caa.govt.nz.

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Manager Communications Bill Sommer.

Editor Peter Singleton.

Safety Education Publishing Team
Alister Buckingham, Lakshmi Guda, Emma Peel, Anna Walkington, Rose Wood.

Design
Gusto.

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Classic Fighters 2011

Many aircraft will be converging on Marlborough this Easter for the Classic Fighters airshow.

Pre-flight Preparation

To plan a safe flight to and from Classic Fighters, make sure you have an up-to-date *AIP New Zealand, Vol 4*, Visual Navigation Charts covering your proposed and alternative routes, and *AIP Supplements* 69/11 and 70/11. On the day of your flight, also remember to get weather information and NOTAMs.

AIP Supplements 69/11 and 70/11

These Supplements cover procedures for operating in the Woodbourne and Omaka area from 21 to 25 April 2011. They are available online, www.aip.net.nz. The importance of having read and understood them cannot be over-emphasised. As you work your way through them, have a copy of the VNC to hand, with your planned route drawn on it. Make sure you have them available for quick reference in the cockpit during your flights.

Can I Fly Into Omaka?

Yes! Visiting aircraft are invited to attend, subject to the following restrictions.

Practice Days

Between 1000 and 1600 NZST on Thursday 21 and Friday 22 April, Omaka will be partially closed while practice sessions are conducted in the first and the third quarter of each hour (ie, 1000 until 1015, and 1030 until 1045). In the second and last quarter of each hour (ie, 1015 until 1030, and 1045 until 1100) arrival or departure slots will be available for general use.

Airshow Days

On Saturday 23 and Sunday 24 April, Omaka aerodrome will be **closed to all aircraft** from 0930 until 1630 NZST.

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Photo courtesy of Tony Smith.

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Temporary Restricted Area

NZR699 will extend from the surface to 4500 feet amsl and will be active daily from 0630 to 1830, 21 to 24 April 2011 and 0630 to 1230, Monday 25 April 2011 NZST. When active, the airspace within NZR699 becomes Class G (uncontrolled).

You cannot operate in NZR699 during designated practice sessions and air-show times, unless you have the specific approval of the Administering Authority. (see the *AIP Supplements*). While in NZR699, pilots must turn on landing and/or anti-collision lights if fitted, operate their transponder on Mode A and C, maintain a listening watch, make radio calls to Omaka Traffic on 126.1 MHz, and make sure they stay within the boundary of NZR699 unless they have a clearance to enter the Woodbourne CTR/D. Non transponder-equipped aircraft must arrive and depart with another aircraft that is transponder and radio-equipped.

ATIS

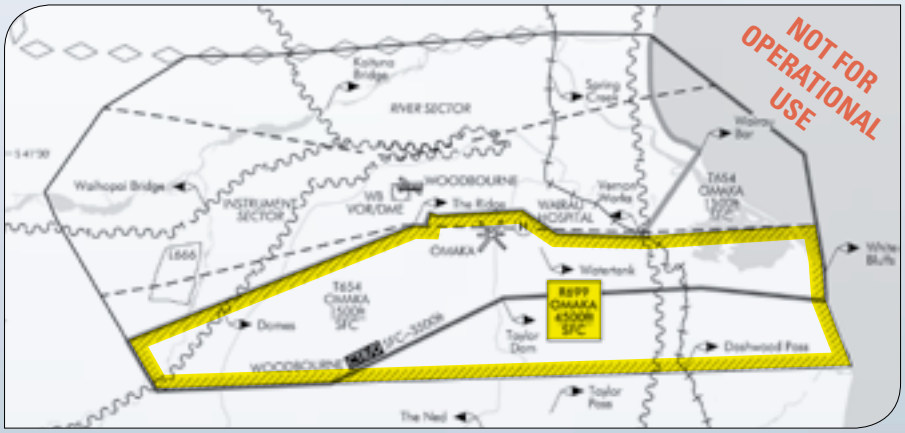
Pilots must listen to the Woodbourne ATIS, 126.05 MHz, prior to entering NZR699 or the Woodbourne CTR/D.

Runways

From 19 to 26 April 2011, Runway 01/19 will be closed.

Parking and Fuel

Visiting aircraft will be marshalled to the Aviation Heritage Centre (where Avgas will be available from an Air BP trailer tanker) or to the closed off section of RWY 01/19.



The boundaries of temporary restricted area NZR699.

Woodbourne CTR/D

Fuel Considerations

Aircraft may be asked to hold outside controlled airspace if the weather falls below certain minima (see *AIP Supplement* 70/11 for details), so you must carry enough fuel to hold for 30 minutes and then divert to another aerodrome.

At Woodbourne, Avgas will be available on request from Air BP during the following periods only: 0800 – 1700 NZST, Friday 22 April and Monday 25 April.

Anyone planning to fly in and out of Woodbourne on Saturday or Sunday will need to carry enough fuel for their flight to Woodbourne, 30 minutes holding fuel, plus the fuel required for their return flight home, with legal reserves.

VFR to Omaka

If you plan to fly one of the Omaka VFR arrival procedures published in *AIP New Zealand, Vol 4*, you may need to enter the CTR/D (for example the Domes Arrival). Make sure you obtain a clearance from Woodbourne Tower before entering.

Photo courtesy of Chris Nielsen.

Subject to traffic and weather, there should be no delay when requesting a clearance to transit the CTR/D and enter NZR699 on a published arrival procedure. Other procedures may be accommodated if weather, traffic, and safety permit.

VFR to Woodbourne

AIP Supplement 70/11 contains two VFR arrival procedures for Woodbourne, the River Arrival for Runway 06, and the Coast Arrival for Runway 24. Study them carefully. Subject to weather, there should be no delay for aircraft requesting a clearance to enter via these arrival procedures.

A landing sequence number will be given when you join the circuit. Simultaneous parallel operations are permitted on grass and sealed Runways 06/24 for aircraft less than 5700 kg. Light aircraft can expect to land on the grass.

IFR to Woodbourne

IFR aircraft will be accepted only for the RNAV (GNSS) RWY 24 approach or the VOR/DME RWY 06 approach (circling as required). The VOR/DME RWY 24 missed approach enters NZR699, requiring the airshow to be suspended, so this is only available with prior approval from Woodbourne Tower.

Departing Omaka VFR

Expect to fly one of the Omaka VFR departure procedures published in *Vol 4*. If you need to enter the Woodbourne CTR/D, obtain a clearance from Woodbourne Tower before takeoff.

Departing Woodbourne VFR

There are two VFR departure procedures published in *AIP Supplement* 70/11, the River Departure for Runway 24 and the Coast Departure for Runway 06. Aircraft must report clear of the Woodbourne CTR/D on 122.8 MHz.

Flight Plans

Woodbourne Tower will not accept flight plan requests or terminations. Call the National Briefing Office (0800 626 756, 0900 62 675, or 03 358 1688) to cancel after landing, or Christchurch Information on 121.3 MHz.

Controlled VFR Requests

VFR pilots requesting a clearance to enter the Wellington CTA/C must:

- If in uncontrolled airspace, make their request at least five minutes prior to the CTA/C boundary – contact Wellington Control on 122.3 MHz; or
- If controlled VFR with Christchurch Control or Ohakea Control, advise your intentions to that sector;
- Have a serviceable Mode C transponder, and include a preferred altitude and route in your request.

Clearances will be subject to workload and should not be requested between 0900 – 0930, 1400 – 1500 and 1600 – 1800 NZST. If a clearance is critical, contact the ATS Supervisor at Christchurch.

Summary

Thorough preparation will enhance your flying experience, making it safer and easier for you, your passengers, and other pilots. In the air, use your passengers to help out. Brief them to point out all the aircraft they spot. Keep your head on a swivel, keep radio calls accurate and to the point, and follow all ATC instructions. See you there. ■

Alfa Tango Sierra – Under a Fiver

Filing a flight plan costs $4.50. What do you get for your money?

Airways' Flight Information boss, Karen Smith, has been in the industry for over 30 years.

"I've seen my share of aviators who haven't made it home safely at the end of the day. It's never a good feeling. You ask yourself 'was there anything I could have done?'. That's why it's so important in our job to do it right first time, every time."

Karen is Airways' Team Leader for the Air Traffic Support Sector. She leads the team of Flight Information Officers, known as FIOs who pilots speak to when they call 'Christchurch Information' on any one of the 14 frequencies nationwide that are dedicated to the Area Flight Information Service. They are an information service, not controllers, but they do pass on instructions and information on behalf of controllers at times.

Flight Information, the NOTAM office, and the National Briefing Office, are all staffed by the same people, who do stints at each post on a rotating roster throughout the day. They share an open-plan work space with the radar controllers in the Airways Radar Centre near Christchurch International Airport (about 3 km down the road).

"Some people think we are controllers, but we don't hold that rating and we're not permitted to direct aircraft. We give information, and at times clearances, to IFR aircraft on behalf of Air Traffic Control. It's like an operating theatre. All you hear about are the surgeons. But think of us as the nurses, working away in the background," Karen says.

All of the 14 flight information frequencies, covering from Kataia to south of Alexandra, come into the headset of the FIO on duty at the time.

Karen says the stint in the hot seat can be anything from an hour, to two hours fifteen minutes at a time.

"If it's busy, you know you've been there after two-and-a-quarter hours. It's like going through one of those school exams."

The workload is highly weather dependent. FIOs can be dealing with over 100 VFR aircraft in a day, or just five.

"If there are a lot of fronts or wind about, we know there won't be too many VFRs that day."

The FIO on duty broadcasts their transmissions on all 14 frequencies. That's why, as a pilot, you hear a lot of half conversations. You will only hear other pilots that are not on your frequency if your frequency is linked to another one, and not very many are.

The FIO doing all the talking is part of a team of two. The other FIO is the planner – they listen in on the frequencies, co-ordinate with air traffic controllers, run the computer, type in updated flight plan data, and answer the phone. The pair stay at their post for the allotted time – and no, they can't leave you unattended for five minutes while they pop to the loo.

The FIO's set-up includes two computer screens. One shows a radar screen similar to an air traffic controller's.

"We can see aircraft on screen, but we can't use this data in the course of our work. The exception is if there's an overdue VFR flight, we can check to see if we are receiving the SSR code, which tells us the aircraft is still flying."

The other screen displays a list of VFR flight plans, and a separate list of IFR flight plans, as FIOs also look after IFR flights that are operating outside of controlled airspace.

If a pilot files a flight plan via the internet using the Internet Flight Information Service (IFIS), the information is

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Flight Information Officer Owen Pritchard takes his turn in the 'hot seat'.
Photo courtesy of Airways.

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automatically populated into the FIO's VFR flight plan list. The FIO planner will usually open your flight plan when you first make contact with Christchurch Information, to marry your position report with your flight plan route and to make any updates you give – but most of the detail in your flight plan is there only in case of emergency. Every VFR pilot can register to use IFIS, and flight plans cost $4.50 + GST. You can also file a flight plan by phone or fax, and this costs $6.50 + GST. FIOs will also accept filing in the air if necessary, but you might have to wait until the frequency is clear if it's a busy day. This also costs $6.50 + GST.

About 80 percent of flight plans are now filed using IFIS. If you're filing this way, make sure you use the correct airport designators.

"The route field of a VFR plan is free text, so the system will accept anything, and we've had some beauties – like WA for Wanganui, which is actually the designator for the Chatham Islands' Waitangi navaid. Don't make them up, because if something goes wrong we want to be looking for you in the right place. Also remember that TO is Tokoroa so don't use that between place names unless you intend going to Tokoroa a lot during your flight (designators are listed in *AIP New Zealand*, Vol 1, GEN 2.4)."

Karen says the most helpful thing pilots who are filing by phone, or on air, can do is give the required information in the right order (this is listed in *AIP New Zealand*, Vol 1, ENR 1.10-17).

"We type the information into a pre-formatted template as you give it, so if you do it in the right order; we're not up and down all over the page trying to put bits in the correct field."

Once a flight plan is filed and the aircraft is in the air, it is your choice whether or not to make contact with the Flight Information Service.

"You can go from one end of the country to the other without ever talking to us, but if you do make contact, we write down every position report you give. If something does go wrong, that gives us a good place to start," Karen says.

That holds true, whether you have filed a flight plan or not. The FIO on duty has an A4-size, customised radio log on their desk, on which they manually log the content of every VFR position report given, and every request for information, such as weather or NOTAMs.

"That service, and the emergency service, is provided to everyone free.

"We had someone who was lost ask how much it would cost if he asked for help. That was perturbing for everyone involved here. There is no charge for any emergency assistance."

Karen says FIOs can often tell when a pilot is getting into trouble.

"You can hear it in the voices when things are getting on the stressful side, and our mental antennae go up then too. We will often offer assistance there and then, rather than wait for the pilot to ask."

Pilots can, and do, get lost.

"We are well trained for emergencies, and the pilot-lost scenario is one we practise a lot. If you think you're lost, or you're unsure – tell us. The first thing we'll get you to do is to Squawk 7700 and give your last known position. If you're in radar coverage, you'll flash red and yellow on the screen and stand out like the proverbial. When that happens, we'll normally hand you over to the radar controllers, and they'll try and get

Airways' Team Leader for the Air Traffic Support Sector, Karen Smith. Photo courtesy of Airways.

you back on track. If you're not in radar cover, we might be able to get another aircraft in the vicinity to help you out, or we might be down to getting you to identify roads, rivers and power lines, and trying to work it out with the charts.

"We had a situation in the south of the country when an aircraft was lost and eventually found an aerodrome and landed, but there were no signs anywhere, so the pilot still didn't know exactly where they were. They took off again and, with some help, found their way to Cromwell. None of us know what aerodrome the first one was, but it was geographic help that got the flight to Cromwell.

"We might sound quite formal during an emergency. That's because our internal investigations show laxity on the radio can contribute to things being misunderstood, and make the situation worse.

"We deal with a lot of people who are either still training, or have just got their pilot licence. We need to keep things as standard as possible. Good RTF skills are essential at both ends of the radio."

The other kind of emergency is the one the FIOs are seeing, but the pilot is unaware of – the overdue SARTIME.

"When a SARTIME is reached, your VFR flight plan data goes red on the screen of the FIO who is manning the briefing office, and an audible warning goes off saying 'overdue alert'.

"If your SARTIME is 0315 UTC. The alert goes off at 0315 – as soon as the clock ticks over. It's not on or about 0315."

If a SARTIME alert is activated, the briefing officer checks with the FIO who's working the radio in case the pilot has called, but the information hasn't yet been updated in the flight plan.

"Then we'll open your flight plan to see where you were going, and look for the last position report you gave in the log. If you were heading to an attended aerodrome, we'll call the tower. We check our screen to see if we can locate your SSR code, and finally we'll try your cell phone and leave a message. If there's no news within about five minutes, we contact the Rescue Coordination Centre through our Duty Manager.

"Your SARTIME is not the time you expect your flight to finish, it's the time you want people to start trying to find you, so we don't muck around."

An overdue alert is always treated seriously in the Flight Information Service. If the pilot is found to have simply forgotten to update or cancel their SARTIME, there is a charge of $35 + GST.

"We'd really like at least one day when all pilots remember to update or cancel their SARTIMEs before they go overdue, but we're still getting overdue false alarms on about 8 percent of plans.

"Don't leave it till the last minute. Give it at least five to ten minutes' lead-in time. If we're busy, there can be a delay loading this information into the computer, or even replying to your call."

Karen also recommends making your SARTIME work for you.

"If you're going to be stopping at a couple of aerodromes along the way, set your SARTIME for arriving at the first aerodrome, and then amend it to when you plan to be at the next aerodrome, and so on. That way, you've got an alerting service at each step along the way, rather than just at the end of the day, when you could be anywhere.

"Just make sure you're in radio coverage if you're planning to amend it over the radio."

You can also amend or terminate your SARTIME by phone or the internet, unless you're already overdue.

Flight Information Officers are geared to assist.

"We can help with the unforeseen. If any pilot needs to go to an alternate aerodrome that they are not briefed on, they can call us for NOTAM information there, whether they are on a flight plan or not – we also hold weather information on some aerodromes. If you're on a flight plan and you change your mind and want to do something different, just call us on the radio and we'll amend the plan."

Pilots should also keep a listening brief on the information frequencies.

"Around the top of the hour, we will broadcast a summary of the weather and NOTAMs that have been issued in the last 90 minutes."

Pilots should establish two-way communications before starting with their messages.

"Give your call sign and wait for us to tell you to go ahead. That allows us to prioritise and minimise cross transmissions and most importantly – 'standby' means standby. If we've heard your call sign, we will have noted it down, and we'll get back to you asap. If we missed your call sign, we'll ask the station that was calling to go ahead, and that's your cue."

It's also helpful to include all changes to your Flight Plan in one transmission.

"If you call up to amend to an alternate aerodrome, we'll open up your plan and make the changes. If you call us back five minutes later to amend your SARTIME, we'll have to open it up again."

Karen says FIOs are required to have very good geographical knowledge. "But if you're giving a position report, it helps to tell us where you are relative to a reasonably big place, like a town.

"It's a lot easier to say you're 'five south of somewhere', than have us scratching our heads and spinning around in our chairs to look at the charts on the wall behind us to figure out what QNH area you're in.

"The main thing from our point of view is that we're just people too. Some pilots fly up and down the country doing a lot of VFR flights and you do get to know them very well. For others it might be their first time in the air. We also get training flights with many pilots for whom English is their second language. The job gives us both challenges and a lot of variety." ■

Get to know your Flight Information Officers better – file a Flight Plan.

www.ifis.airways.co.nz

NBOPLN (0800 626 756) is free to call from a landline

0900 62 675 $2 + GST to call per minute from a cell phone

03 358 1688 normal call charges apply

NBOFAX (0800 626 329)

Two Thousand Feet **Too High**

There was just 10 metres in it when a single-engine turbo-prop was almost hit by an Airbus at 29,000 feet over France last year.

The Pilatus PC12 pilot had reported the aircraft was giving two different altimeter readings, and had requested confirmation of altitude from ATC. Altimeter 1 read 27,000 feet, while altimeter 2 read 29,000 feet. The controller said the PC12 appeared to be at 27,000 feet, but requested a cross-check with a military control centre, which was equipped with primary height-finding radar. As there were no other aircraft in the immediate vicinity, no effort was made to ensure horizontal separation from the PC12.

After three minutes, the military control centre confirmed the PC12 was at 27,000 feet. Shortly after, an Airbus A318 entered the area, made contact with ATC and was cleared to 29,000 feet. About 10 minutes later, the Airbus pilots felt the aircraft bank slightly from right to left. Looking outside the cockpit they saw they were rapidly closing on the PC12. The crew immediately banked the Airbus left, reportedly missing the PC12 by about 10 metres.

About 10 minutes after the event, the PC12 pilot selected the aircraft's second altimeter for Mode C. The aircraft popped up on the controllers' screens at 29,000 feet.

The altimeter failure was caused by a leak in the connector that links that altimeter's static circuit with the cabin differential pressure indicator.

Safety Lessons

» The PC12 was not required to be fitted with a third 'stand-by' altimeter, and none was fitted. Had a third altimeter been available, the pilot would have been able to cross-check the two disparate indications.

» The Mode C altitude readings that the aircraft transmits to controllers are pressure-derived and will be incorrect if the aircraft's altimeter system is not working properly. In this case, the civilian and military controllers all confirmed the same incorrect altitude. Similarly, the collision avoidance systems on the Airbus were not triggered.

» In a Safety Warning Message issued this year, the European Air Navigation Service Provider said an altimeter discrepancy should be treated as an unusual situation, and different from a standard altitude verification. It advises controllers to establish horizontal separation immediately, ask the pilot to stop transmitting Mode C, advise the pilot that their altitude cannot be confirmed, and have them squawk 7700 on Mode A. Controllers should then assist the pilot to remain in VMC and to land as soon as practicable.

» Faced with this dilemma, pilots should make a PAN PAN call, squawk 7700 on Mode A, advise ATC and turn Mode C off, before following ATC advice in order to regain VMC and land as soon as practicable. ■

Standby Caller

Cellphones have been approved for use on Air New Zealand's All Black A320 during the cruise. Here's why it is safe to use your phone on this aircraft.

For the first time in New Zealand airspace, an aircraft has been approved to allow passengers to use their cellphones on board during IFR operations. This A320 is not like every other. It is fitted with special systems to ensure cellphones cannot endanger flights.

To understand how it all works, you first need to understand some fundamentals of cellphones. As you move around the streets, your phone receives a control signal from the local cell site it is nearest to. Your phone logs into that site, transmitting with only as much power as it needs to. If your phone can get only a weak signal, it must use more power to transmit. The ability to vary its transmitting power prolongs your phone's battery life, and also prevents interference from other nearby cell sites.

As you continue to walk or drive around street locations, the signal from one cell site will diminish and another will increase. Your phone will switch from site to site, always logging in to the strongest signal. It is a seamless transition – you don't even know it is going on. When your phone is not receiving a control signal, its transmitter turns off to conserve battery power.

The special A320 is fitted with one of these GSM system cell sites (the old CDMA network will not operate). When the GSM site is active during cruise stages of flight, cellphones can log in to it, just as if it were a cell site on the ground. Because the cell site is on board the aircraft, cellphones need only transmit at their lowest power setting. The onboard cell site is linked to the ground network via satellite, and there

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Photo courtesy of Air New Zealand

An antenna transmitting at about 10 times the maximum power of a cellphone was moved about the aircraft.

Leaky Line Antenna

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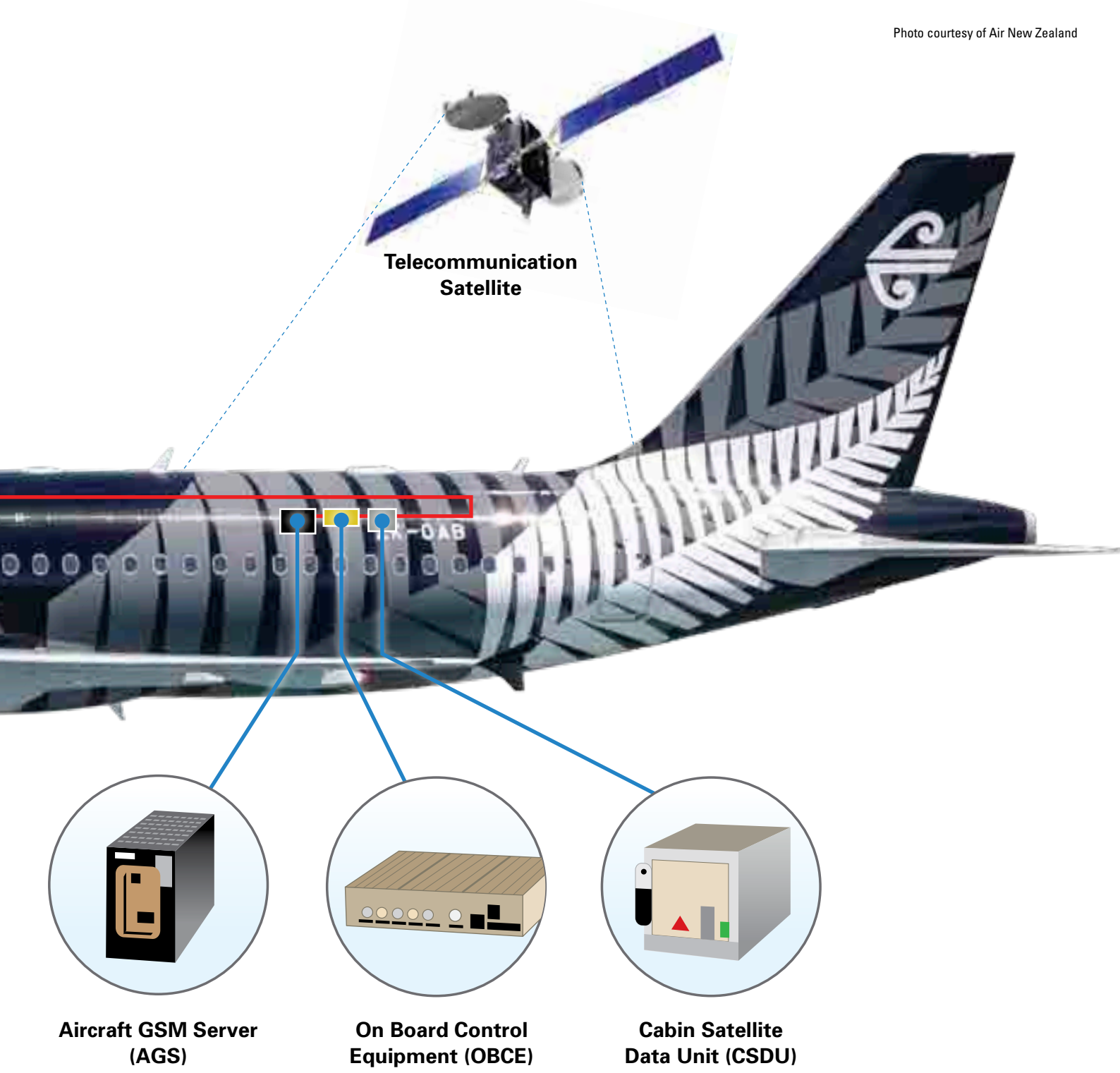
is enough capacity to run eight calls at the same time, as well as multiple texts and emails.

The primary safety concern relating to the use of cellphones is interference with aircraft systems, but cellphone use was originally banned on aircraft because at altitude a cellphone could 'see' and log in to multiple cell sites on the ground. This multi-cell triggering caused considerable interference to the ground network, including dropped calls and failed connections. The A320 is fitted with onboard control equipment to prevent this. A 'leaky line antenna' which runs the length of the cabin has been installed. It transmits at the same frequencies as the ground cell sites, 'leaking' an even level of background signal throughout the aircraft. In effect, this masks signals from the ground cell sites, so the cellphones on board do not try to log in to the ground network. The strength of the leaky line transmission is varied, depending on the aircraft's altitude and location.

Certifying the A320 as safe for cellphone use required a detailed safety analysis. All of the aircraft's systems were assessed to determine whether they could be affected by interference from cellphones. Several cellphones were operated in the aircraft at the same time with all of their transmitters set to maximum power. The aircraft's systems were examined for effects from interference. Then an antenna transmitting at about 10 times the maximum power of a cellphone and on the same frequencies was moved about the aircraft. Its signal was directed into all of the equipment considered

Photo courtesy of Air New Zealand



necessary for the safe operation of the flight. No system was allowed to fail this test.

There are still critical phases of flight in which cellphones cannot be used, even on board the special A320. The onboard phone system is automatically controlled, and will operate only above 10,000 feet, and only in a geographical region which has approved the use of an airborne cell system.

Aircraft cellphone use is still banned in many countries. To gain approval to use the system here, Air New Zealand had to gain an exemption from rule 91.7(a), which prohibits the use of portable electronic devices on aircraft operating under IFR.

The CAA reviewed the certification documentation, and determined that any safety risks were adequately mitigated by the A320's onboard control systems. This system has also been approved by the European Aviation Safety Agency, but the CAA was still obliged to carry out its own review and analysis. The Director approved the exemption on the basis of this review.

Air New Zealand then needed approval from the Ministry of Economic Development Radio Frequency Service to operate the system, as it includes a transmitter operating in a cellphone band that is licensed to and paid for by other cellphone operators. After consulting with these operators, the Ministry issued a General User Radio Licence to allow the system to be operated in New Zealand's airspace. The airline has to repeat this licensing exercise for every country in which it intends to operate the system. ■

Human **Sling Loads**

It looks exciting – it feels exciting – but exciting's not the word when something goes wrong.

A 'human sling load' is the carriage of a person on a sling or strop suspended from a helicopter, with the lifting tackle being attached to the helicopter's cargo hook. This method of transport was common during the venison recovery years, when shooters or gutters would use the lifting chain as a convenient method of travel from one pickup site to another. In some cases, this was done without the pilot's knowledge, and sometimes an accidental load release included the person riding the sling.

The human sling load is in reasonably widespread use today as a convenient alternative to winching, for placing persons on the ground or structures where a landing is not possible. Other tasks, such as powerline inspection and rescue operations, are also performed by this method.

From a distance, it just looks like someone dangling on the end of a string beneath a helicopter, but there is a little more to it than that. It is not simply a matter of attaching one end of a rope to your belt and the other to the helicopter. Civil Aviation Rules, Part 133 *Helicopter External Load Operations* prescribe some basic requirements, and there are some other considerations as well.

Rule 133.5(b) requires that the pilot hold a current CPL(H); 133.75 details crew – not just the pilot's – competency requirements; 133.53 prohibits the carriage, inside the helicopter, of anyone not essential to the operation; 133.69 requires the load to be attached to a hook or device required by 133.255(1); and 133.71 *Suspension of persons beneath helicopters* provides a number of specific requirements to be met.

These include limiting the helicopter's operating weight to a maximum of 90 percent of its out-of-ground-effect (OGE) hover weight; minimising the distance necessary for the carriage of the person on the sling; requiring two separate actions to release the sling load; eliminating the possibility of inadvertent release; and prescribing safe manoeuvring area dimensions.

The cargo hook fitted to the helicopter will have an accompanying Flight Manual Supplement (FMS), which will include a Limitations section. If the hook is not approved for human cargo, this will be stated as a limitation, such as the following text from the Onboard Systems FMS for the 200-267-00 Cargo Hook Kit for the Bell 206: "This cargo hook is approved for non-human cargo, class B and C rotorcraft load combinations only".

Another FMS found in some Hughes 369 series Flight Manuals, is Supplement X, *Human Sling Loads Operation*, approved for a particular operator in 1991. The equipment used was a normal load lifting rig with an additional safety strap to prevent inadvertent release. A second crew member was required to have a suitable knife available if the strap needed to be cut in an emergency. Additionally, a 52 knots IAS maximum was imposed, as was a maximum permitted sling load weight of 214 kg. A similar supplement for the Bell 206 Flight Manual lists a maximum weight of 400 kg. Although there is no reference to these supplements in Part 133, the 52-knot limit would appear to be sensible, if only for the comfort of the person on the sling.

Rule 133.255(2) specifies that the external load equipment is capable of withstanding a loading of 3.75 times the weight of the load. Using equipment manufactured to a recognised standard (eg, Australian/New Zealand Standard, ISO, BS, etc) will ensure that this requirement is met, as the safe working load for that particular item will be clearly documented. Ensure that any manufacturers' conditions are complied with, in respect of inspection intervals, safe working practices, periodic testing, and limitations.

Some thought should also be given to the level of protective clothing worn by the 'passenger'. A helmet would be a good start, as protection against the dropping of the chain sling or even a shackle on a rope sling before or after landing the passenger.

An approved modification to the helicopter may be required if an intercom system is to be installed for communication between the pilot and the person on the sling.

What could go wrong? In this type of operation, probably quite a lot, and a serious risk analysis should be carried out. Here are some questions you might ask yourself in the process:

» What risk assessment did you perform before setting up this operation? If you actually did one, did you do it yourself, and bias the results towards the outcome you wanted? Or did you engage a non-interested party to look at this objectively?

In summary, the requirements are the right gear, the right paperwork, the right approach and above all, a robust risk assessment that you can justify in the worst circumstances.

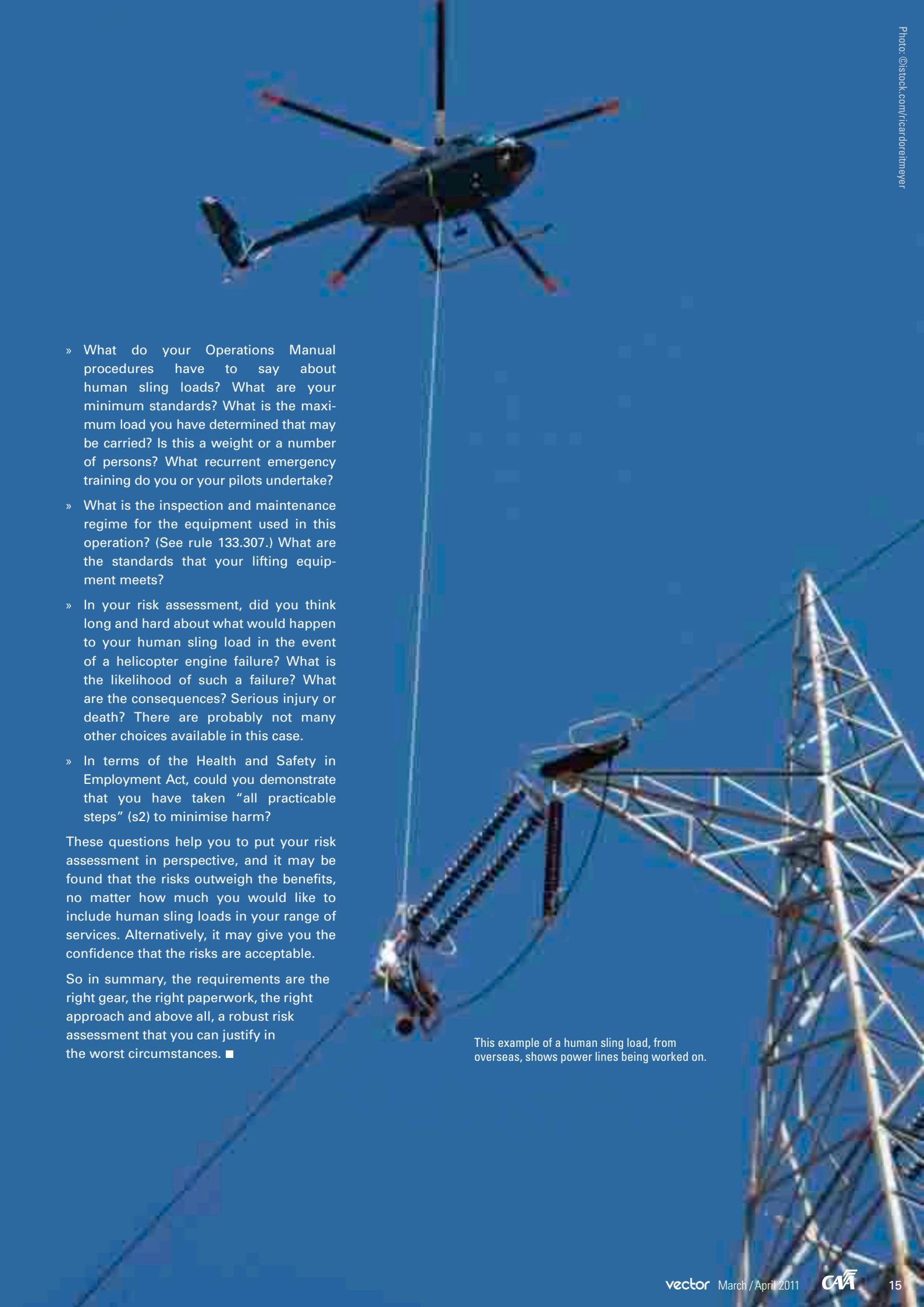


Photo: ©istock.com/ricardoreitmeyer

- What do your Operations Manual procedures have to say about human sling loads? What are your minimum standards? What is the maximum load you have determined that may be carried? Is this a weight or a number of persons? What recurrent emergency training do you or your pilots undertake?
- What is the inspection and maintenance regime for the equipment used in this operation? (See rule 133.307.) What are the standards that your lifting equipment meets?
- In your risk assessment, did you think long and hard about what would happen to your human sling load in the event of a helicopter engine failure? What is the likelihood of such a failure? What are the consequences? Serious injury or death? There are probably not many other choices available in this case.
- In terms of the Health and Safety in Employment Act, could you demonstrate that you have taken "all practicable steps" (s2) to minimise harm?

These questions help you to put your risk assessment in perspective, and it may be found that the risks outweigh the benefits, no matter how much you would like to include human sling loads in your range of services. Alternatively, it may give you the confidence that the risks are acceptable.

So in summary, the requirements are the right gear, the right paperwork, the right approach and above all, a robust risk assessment that you can justify in the worst circumstances. ■

This example of a human sling load, from overseas, shows power lines being worked on.

Safety Targets Update

In 2005, the CAA set safety targets for each sector of the aviation industry to reach by 2010. The targets measure the social cost of aviation – not just numbers of accidents.

They incorporate statistical values for fatalities ($3.5788 million per injury), serious injuries ($374,100), and minor injuries ($15,900), as well as the value of the aircraft destroyed.

The unit of exposure for the targets is one seat hour, except for those sectors that are not passenger carrying. In these sectors a surrogate of 500 kg of aircraft weight is used instead of seat hours.

All graphs are shown as three-year averages.

Industry Change

In 2010, a further 20 sport aircraft and 5 small aeroplanes were added to the New Zealand register.

However, in 2010 there were 8.7 percent fewer aircraft movements at certificated aerodromes than in 2009 (where data is collected).

Safety Target Structure

Total Safety Cost

Public Air Transport

Any passenger or freight operation where a member of the public can buy the service "over the counter".

- **Airline Operations – Large Aeroplanes**
  All operations (other than Part 137 agricultural) using aeroplanes that must be operated under Part 121 when used for air transport.
- **Airline Operations – Medium Aeroplanes**
  All operations (other than Part 137 agricultural) using aeroplanes that must be operated under Part 125 when used for air transport and aeroplanes conducting SEIFR passenger ops.
- **Airline Operations – Small Aeroplanes**
  Transport and transport support (training, ferry, etc) operations using aeroplanes that must be operated under Part 135. Also includes ambulance/EMS.
- **Airline Operations – Helicopters**
  Transport and transport support (training, ferry, etc) operations using helicopters that must be operated under Part 135. Also includes ambulance/EMS.
- **Sport Transport**
  Transport and transport support (training, ferry, etc) operations using sport aircraft (including microlights, balloons, parachutes, gliders, etc.)

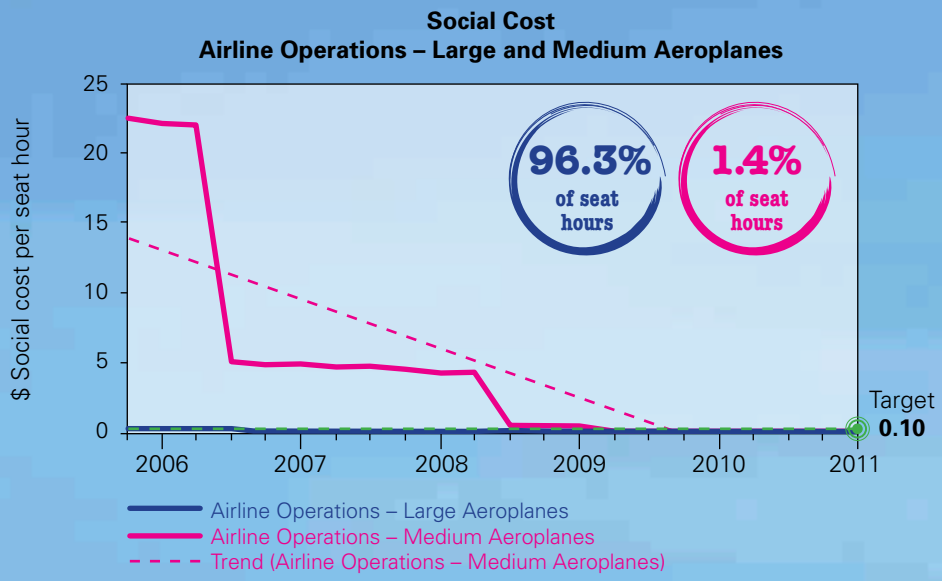
Other Commercial Operations

- **Commercial Operations – Aeroplanes**
  All non-public transport ops for hire or reward or as part of any commercial activity.
- **Commercial Operations – Helicopters**
  All non-public transport ops for hire or reward or as part of any commercial activity.
- **Agricultural Operations – Aeroplanes**
  Agricultural ops, ferry and training for Ag ops.
- **Agricultural Operations – Helicopters**
  Agricultural ops, ferry and training for Ag ops.
- **Agricultural Operations – Sport**
  Agricultural ops, ferry and training for Ag ops.

Non-Commercial Operations

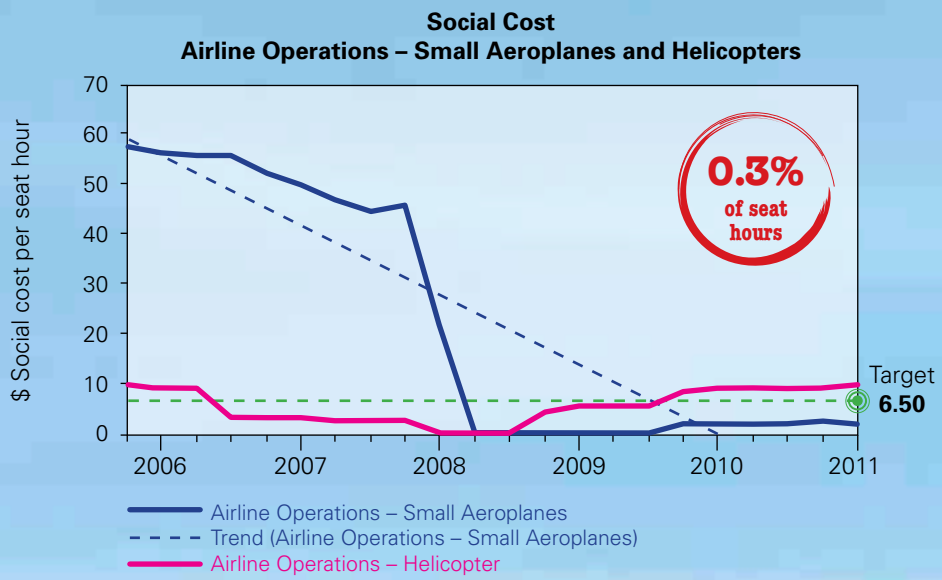
- **Private Operations – Aeroplanes**
  Aircraft owned or hired for private or cost sharing use, including glider towing.
- **Private Operations – Helicopters**
  Aircraft owned or hired for private or cost sharing use.
- **Private Operations – Sport**
  Sport aircraft (including microlights, balloons, parachutes, gliders, etc.) owned or hired for private or cost sharing use.

The following graphs show moving averages for each sector to the end of December 2010.



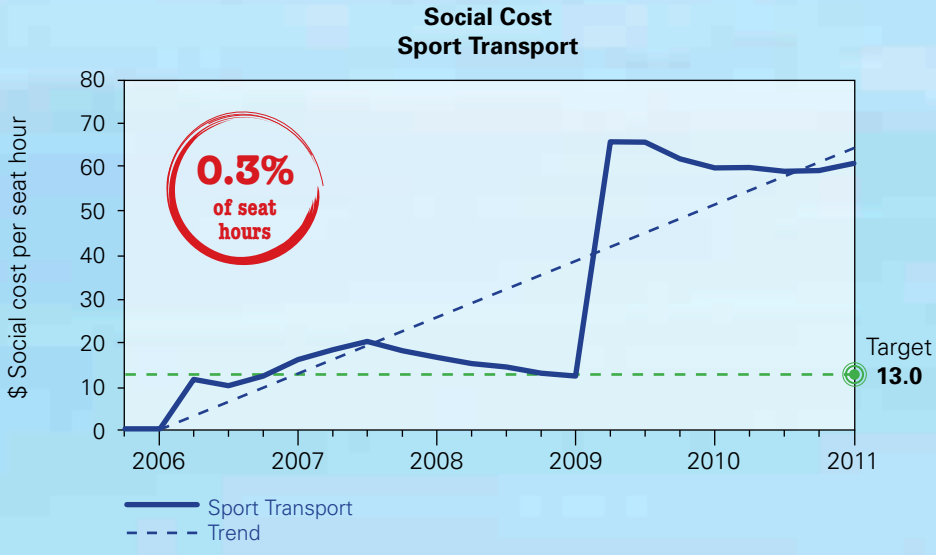
Large aeroplanes have been below the required target since late 2006. There have been one serious and six minor injuries in this sector in the three years to December 2010.

The medium aeroplane sector has been below the required target since June 2009 (the data point at December 2010 is $0.02 per hour of exposure). There have been three minor injuries in this sector in the three years to December 2010.



Small aeroplanes used in airline operations have achieved a significant long-term downward trend from the high starting point caused by six fatal and two serious injuries, and one minor injury in the three years to September 2005. There have been one serious and two minor injuries in this sector in the three years to December 2010. This sector has been below its target since March 2008.

The sector for helicopters used in airline operations has been above the required target since September 2009. There have been two serious and four minor injuries in this sector in the three years to December 2010.



Three fatal accidents in the sport transport sector in early 2009 have resulted in the highest outcomes since the targets using social cost were established in 2005. There have been five fatal, 11 serious and 12 minor injuries in the three years to December 2010.

Note that this group includes hang gliders and parachutes used on transport operations.

The expressions "Non-commercial Operations", "Other Commercial Operations", and "Public Air Transport" are used to explain the groupings used in the analysis of data. These expressions do not reflect the legal definitions in the Civil Aviation Act 1990.

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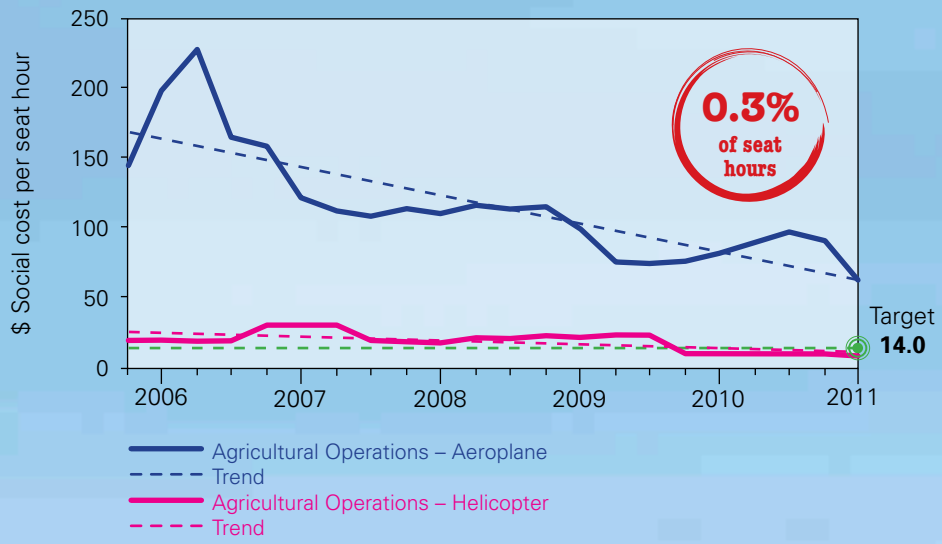
Social Cost
Other Commercial Operations – Aeroplanes and Helicopters

Aeroplanes used in commercial operations (other than airlines) are well above their target. In the three years to December 2010, there have been 15 fatal, three serious and three minor injuries in this sector.

Helicopters used in commercial operations (other than airlines) are also well above the target. There have been four fatal, one serious and three minor injuries in this sector in the three years to December 2010.

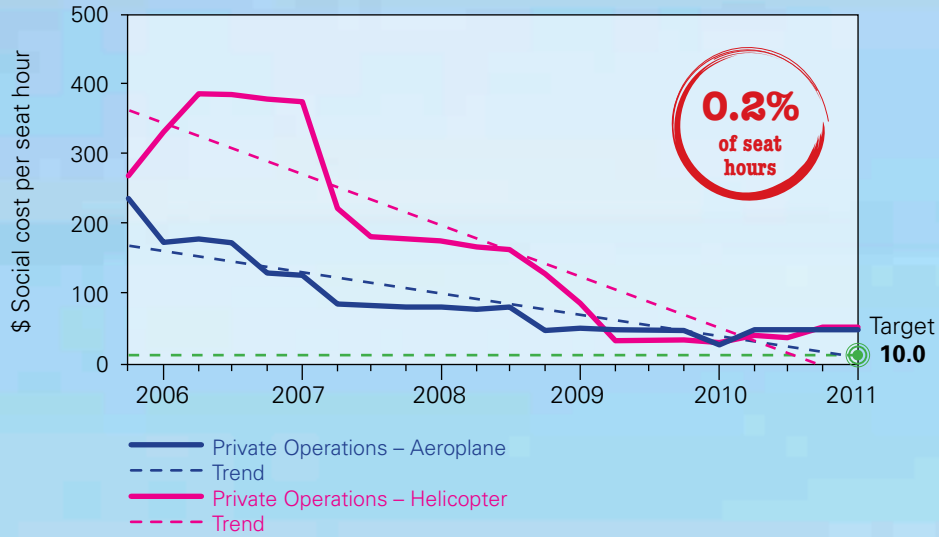
Social Cost
Agricultural Operations – Aeroplanes and Helicopters



Aeroplanes used in agricultural operations are well above their target. During the three years to December 2010 there have been one fatal, two serious and two minor injuries in this sector.

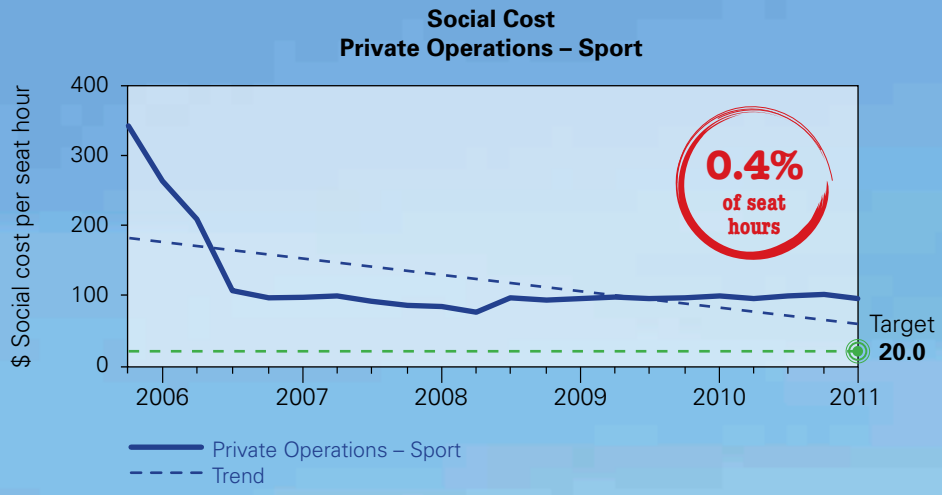
Helicopters used in agricultural operations have been below their target since September 2009. There have been one serious and two minor injuries in the three years to December 2010.

Social Cost
Private Operations – Aeroplanes and Helicopters



Aeroplanes used in private operations have been trending down since late 2005, but are still well above their target. There have been two fatal, three serious and two minor injuries in the three years to December 2010.

Helicopters used in private operations have been trending down since early 2006, but are still well above their target. There have been one fatal, two serious and five minor injuries in the three years to December 2010.



Sport aircraft used in private operations are well above their target. There have been 14 fatal, 22 serious and 30 minor injuries in the three years to December 2010. ■

Note that this group includes hang gliders and parachutes used on private operations.

Flights for **Charity**

It is fantastic to see people giving generously to the Christchurch Earthquake Appeal, or finding innovative ways to raise money for the cause, such as baking sales, mufty days, or donating goods and services to charity auctions.

Remember, however, that any flight a passenger pays for is a hire or reward operation – regardless of whether you keep the money afterwards or give it to a good cause.

Don't be tempted to auction or raffle a flight in an aircraft unless you hold an Air Operator Certificate (AOC), the aircraft is covered by your AOC Operations Specifications, and the pilot holds a Commercial Pilot Licence, is current, and appropriately rated.

In December 2010, two well-meaning pilots offered a flight in a warbird on the Trademe web site, and an aerobatic flight on the Sella web site. Both advertisements stated that the proceeds would go to a charitable cause. The auctions were withdrawn prior to completion after it was pointed out that the flights would not comply with CAR 119.5 (b), which states, "No person shall perform an air operation except under the authority of, and in accordance with, an air operator certificate issued under this Part."

Any time passengers or goods are carried for hire or reward, this falls under the definition of "air operation" (see Part 1 *Definitions and Abbreviations*).

Maybe give baking a go instead?

Young Eagles News

The Young Eagles programme is conducted to promote aviation among young people. Aims include a first flight experience in a light aircraft, and participation in activities such as visits to control towers, maintenance workshops, and aircraft museums.

The programme, run here by Flying New Zealand (the Royal New Zealand Aero Club), includes the annual Ross Macpherson Memorial Flying Scholarships. Each scholarship is worth $2000 toward flight training at the winning Young Eagle's aero club.

From left: Young Eagles' Coordinator, Kevin Lloyd, Troy Chapman, Justin Sturrock, Lewis Bishop, Saskia van Well, and Simeon Oborn.

In addition, the Nola Pickard Trophy is presented to one scholarship winner.

Scholarship winners for 2011 are:

Lewis Bishop – Motueka Aero Club

Troy Chapman – Canterbury Aero Club

Simeon Oborn – New Plymouth Aero Club

Justin Sturrock – Nelson Aero Club

Saskia van Well – North Shore Aero Club

The Nola Pickard Trophy was awarded to **Troy Chapman**.

The scholarships were presented at Flying New Zealand's National Championships held at West Melton Aerodrome, Christchurch, in February 2011.

Kevin Lloyd, coordinator of the Young Eagles programme says, "We are seeing a significant increase in the number of clubs involved in Young Eagles, and also an increasing number of young people taking part."

The CAA is a major sponsor of the Young Eagles programme. Other sponsors are: Airways, Aviation Services Ltd, Aviation Cooperating Underwriters Ltd, and the former Pine Park Flying Club. ■

Helicopter Health and Safety Guideline

The CAA's Health and Safety (HSE) Unit is developing a Guideline for workplace health and safety on board helicopters in operation. It will be produced with input from the aviation industry and now's your opportunity to be involved.

Letters have been sent to nominated operators, inviting them to assist with the development of the Guideline. The HSE Unit will also hold meetings in the North and South Islands to discuss and develop the Guideline's content. If you want to be involved, email the address below.

The CAA's HSE and Rotary Wing Units will develop the helicopter Guideline, with their role being one of facilitation, development, and where required, guidance from a Civil Aviation and Health and Safety regulatory viewpoint.

The CAA has regulatory oversight responsibility for health and safety of crew employed, or engaged to work, on board helicopters as a place of work. Under the Health and Safety in Employment Act 1992, there are several ways that the CAA can assist in improving health and safety, including the production of Safety Guidelines and Approved Codes of Practice.

This Guideline will help operators meet the requirements of the Health and Safety in Employment Act 1992 and Health and Safety in Employment Regulations 1995.

A Guideline is the standard that must be met or exceeded. An example is the Guideline for *Farm Airstrips and Associated Fertiliser Cartage, Storage and Application*, which was jointly produced by the Department of Labour and the CAA in 2006.

Janet Lammas, CAA Health and Safety Inspector, is heading the production of this Guideline. For more information, contact the CAA Health and Safety Unit, email: hsu@caa.govt.nz. ■

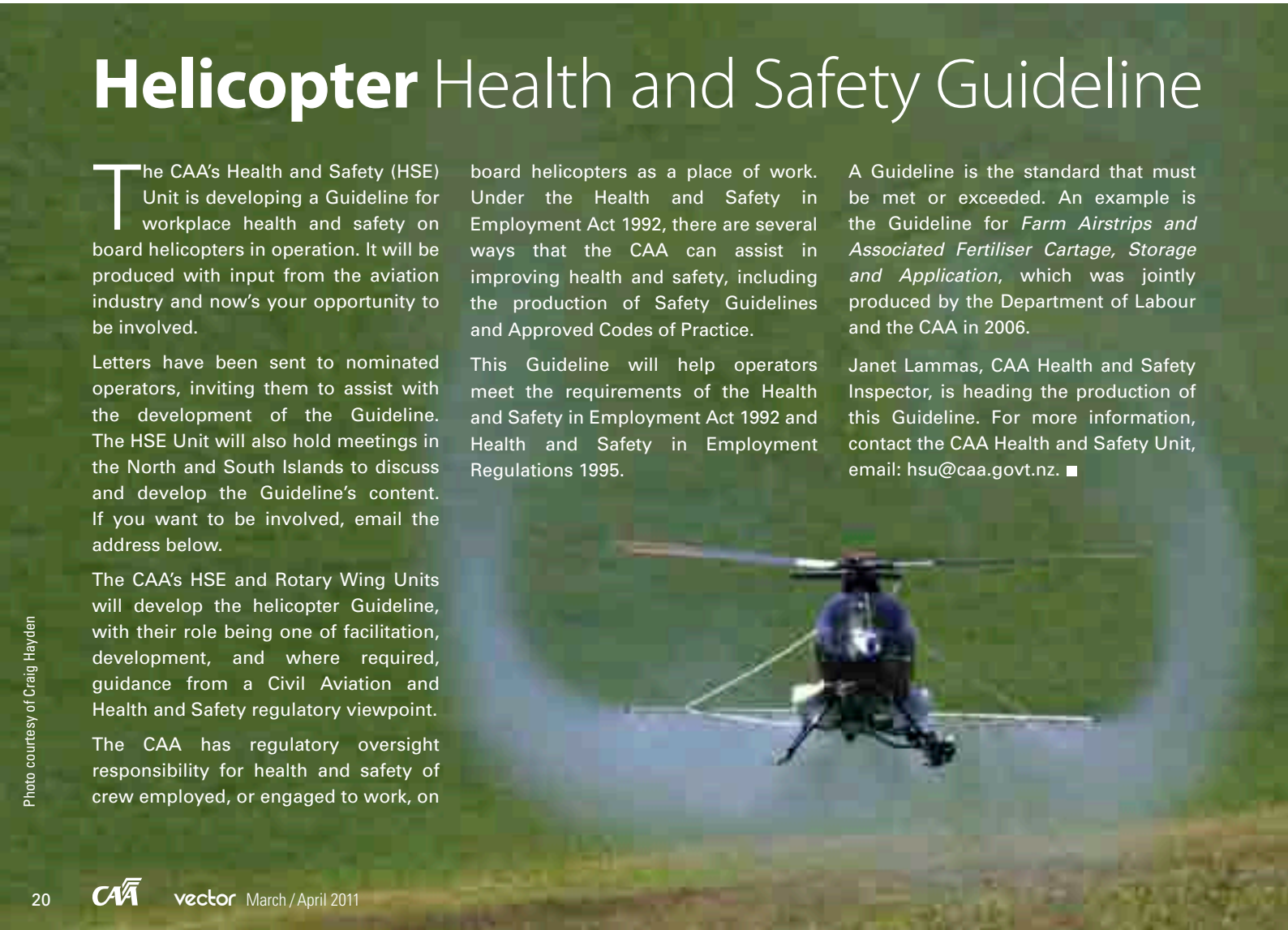


Photo courtesy of Craig Hayden

Photo by Rob Neil, courtesy of Vincent Aviation

Communications **Over Water**

Consider this scenario: an aircraft that's about 200 NM out from Auckland gives ATC an ETA and SARTIME for Lord Howe Island of about five hours hence. En route, there is an emergency, but the pilot is unable to communicate with ATC because their aircraft has no long-range communications equipment installed.

The only means of communication from the aircraft's position would be an off-chance relay by passing traffic on VHF. By the time SARTIME elapsed, where would the aircraft be? And, in what condition? Where should the search begin and how long would it take?

Long-range Communication

The need for long-range, continuous two-way communication with an ATS unit on flights over water is safety-critical. But despite this, recent anecdotal evidence shows that there are many aircraft flying over water without the required long-range communication equipment. Some of these aircraft operate satellite phones, but some carry no long-range communication equipment at all.

Why Not Satellite Phones?

Under rule 91.515 *Communication and navigation equipment – VFR over water* and 91.519 *IFR communication and navigation equipment*, aircraft operating over water and at a distance of more than 30 minutes flying time from the nearest shore, should have communication equipment on board that meets Level 1 or 2 criteria. Satellite phones do not meet the Level 1 or 2 criteria.

The International Civil Aviation Organisation (ICAO) refers to satellite phone devices as SATCOM Voice (SCV), and has recently started work to develop standards for SCV. Much of this work will focus on integrating SCV into the ATS system.

The following elements need to be addressed:

» **Definition of standards of service for the communications link**

Defining the standards of service for the system has been the major problem in establishing SCV for ATS use.

» **SCV needs to be integrated into the aircraft and its communications systems**

The SCV system must be fully integrated into the aircraft audio system so that the crew can use headsets, communications are recorded by the Cockpit Voice Recorder, and the crew can use the system when they are wearing oxygen masks.

The telephone numbers need to be stored in the SCV system, and the operator must verify the numbers before departure.

» **SCV needs to be integrated into ATS facilities**

The greatest hindrance to widespread SCV use for ATS purposes is integration into the air traffic management systems – this is an enormous task.

Conclusion

Over water communications requirements are there for safety. Passengers and crew are put at risk when aircraft are operated over water without the required communications equipment installed. Reports of aircraft not complying with the rules in this regard will be investigated and action taken when appropriate.

For further information, contact Ron Doggett, Airworthiness Engineer – Avionics, email: Ron.Doggett@caa.govt.nz ■

Ground Safety

Safety on the ground involves airlines, airports, and all the related services, such as fuel suppliers, caterers, and handling agencies. The Australasian Aviation Ground Safety Council (AAGSC) brings all these operators together to exchange information, promote safety education, and formulate operating standards.

Their web site, www.aagsc.org, has information for members, and resources such as training packages, posters, and stickers. One recent production is the Aviation Ground Safety Training Interactive Toolkit. This DVD has modules covering Airside Driving, Aircraft Turn-around, Refuelling Operations, and many more. It will be a useful aid to everyone involved in ramp and terminal operations, and can be ordered from the AAGSC web site. ■

NZ Air Navigation Register to Change

The format and content of the NZ Air Navigation Register (NZANR) is changing. Currently the NZANR is updated manually with data from various sources. This method has some risks, such as omitting data or introducing errors.

A single source database for aeronautical data, Aeronautical Information Exchange Model (AIXM), is being developed by Airways under contract to CAA. AIXM will make aeronautical data available in an electronic format from which the *AIP New Zealand* and aeronautical charts will be produced.

To meet CAR Part 71 requirements, the NZANR will be automatically generated from the AIXM database, and be updated on the standard AIRAC cycles. The new report format of the NZANR will look different from the current, manually created, tables.

See more information and format samples on the CAA web site, www.caa.govt.nz, "Airspace – NZ Air Navigation Register (NZANR) Review".

From 7 April 2011, the new format NZANR will be located on the AIP web site, www.aip.net.nz, so that all aeronautical data is in one area.

For users with operational requirements, 28-day advance copies of ANR reports will be available on request from Airways, email: aim@airways.co.nz.

Feedback on the new format NZANR should be directed to Mike Haines, Manager Aeronautical Services, email: mike.haines@caa.govt.nz, tel: +64 4 560 9521. ■

Maintenance Controller Course

This Course won't turn you into a Maintenance Controller overnight, but it is the ideal foundation for you to build on in your job. After passing the Maintenance Controller course, you can have on-the-job assessment and an oral exam, and then be issued with a National Certificate in Aeronautical Engineering (Maintenance Controller).

Whether you're an airline maintenance planner, or a private aircraft owner, this Course will give you the building blocks you need to understand the planning and direction of maintenance. It's more than just meeting the rule requirements – the ability to carry out good maintenance planning and control is a tool for better business.

The Course covers the 2007 rule changes and the new aircraft logbooks, and for 2011, new examples with different aircraft types are being introduced to keep the Course relevant and topical.

The first Course for 2011, in Tauranga, is already booked out, so register your interest now for future Courses.

Other Proposed Courses for 2011

Christchurch or Dunedin – June/July. If there is sufficient interest, courses will be held in both Christchurch and Dunedin, so please register your interest now. Alternatively, there will be just one course in one of the locations.

Taupo – August
Auckland – October
Wellington – November

To register for a course, fill in the registration form on the CAA web site, www.caa.govt.nz, under "Seminars and Courses – Maintenance Controller Course" and send with the registration fee ($255.56), to:

John Bushell
GA Airworthiness Coordinator
PO Box 3555
Wellington 6140
Email: John.Bushell@caa.govt.nz ■

See the CAA web site, www.caa.govt.nz, "Seminars and Courses".

New Products

Takeoff and Landing Performance

This Good Aviation Practice (GAP) booklet has had a minor revision, and a visual makeover. For a free copy, email: info@caa.govt.nz ■

Funding Review Update

Submissions to the CAA's Funding Review consultation closed on 30 November 2010. Forty-one submissions that covered a wide range of issues were received. These will be considered as the Funding Review proposal is finalised.

A summary of submissions is available on the CAA web site, www.caa.govt.nz, under the Quick Links tab.

The CAA's Funding Review will also take into account the recommendations from the Value for Money (VfM) review, once they have been fully considered. This means that the Funding Review proposal to the Minister of Transport will be delayed.

The CAA will keep the aviation community informed of progress and timelines through the CAA web site and *Vector* magazine. ■

How to Get Aviation Publications

AIP New Zealand

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

Pilot and Aircraft Logbooks

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

Rules, Advisory Circulars (ACs), Airworthiness Directives

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

Planning an Aviation Event?

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

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

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

CAA Cut-off Date	*Airways Cut-off Date*	*Effective Date*
18 Apr 2011	25 Apr 2011	30 Jun 2011
16 May 2011	23 May 2011	28 Jul 2011
13 Jun 2011	20 Jun 2011	25 Aug 2011

See **www.caa.govt.nz/aip** to view the AIP cut-off dates for the year 2011.

Aviation Safety Advisers

Aviation Safety Advisers are located around New Zealand to provide safety advice to the whole aviation community. You can contact them for information and advice.

Don Waters (North Island)
Tel: +64 7 376 9342
Fax: +64 7 376 9350
Mobile: +64 27 485 2096
Email: Don.Waters@caa.govt.nz

Murray Fowler (South Island)
Tel: +64 3 349 8687
Fax: +64 3 349 5851
Mobile: +64 27 485 2098
Email: Murray.Fowler@caa.govt.nz

John Keyzer (Maintenance, North Island)
Tel: +64 9 267 8063
Fax: +64 9 267 8063
Mobile: +64 27 213 0507
Email: John.Keyzer@caa.govt.nz

Bob Jelley (Maintenance, South Island)
Tel: +64 3 322 6388
Fax: +64 3 322 6379
Mobile: +64 27 285 2022
Email: Bob.Jelley@caa.govt.nz

Aviation Safety & Security Concerns

Available office hours (voicemail after hours).

0508 4 SAFETY
(0508 472 338)
isi@caa.govt.nz

For all aviation-related safety and security concerns

Accident Notification

24-hour 7-day toll-free telephone

0508 ACCIDENT
(0508 222 433)

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

Accident Briefs

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

ZK-WGE Cessna 172K

Date and Time:	22-Jan-10 at 9:00
Location:	Motiti Island
POB:	4
Injuries:	0
Nature of flight:	Transport Passenger A to B
Pilot Licence:	CPL (Aeroplane)
Age:	20 yrs
Flying Hours (Total):	227
Flying Hours (on Type):	22
Last 90 Days:	102

The aircraft was completing a landing at Motiti Island. When it became apparent to the pilot that the aircraft would not stop in the remaining runway length available, he initiated a ground loop manoeuvre to the left. The aircraft began turning to the left, but only succeeded in manoeuvering toward a bay situated adjacent to the runway threshold. The aircraft ran towards a series of small tree stumps situated at the end of the runway, striking two of them at a fast walking pace.

CAA Occurrence Ref 10/222

ZK-GOY LET L-13 Blanik

Date and Time:	11-May-10 at 13:00
Location:	Omaka
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Training Solo
Pilot Licence:	CPL (Aeroplane)
Age:	64 yrs
Flying Hours (Total):	6000
Flying Hours (on Type):	2
Last 90 Days:	27

The glider landed short of the runway, impacting a fence with the nose and canopy. The pilot had stayed high on the approach, and used air brakes during the initial approach. When the pilot stowed the air brakes, they did not park properly in the levers indent position. Consequently, they deployed again during the approach without the pilot's knowledge and airspeed decreased, the pilot rectified this by diving to regain speed. However, on achieving speed he raised the nose and the airbrakes deployed again. The pilot therefore dived again to recover speed but realised he would not make the aerodrome. The pilot set up to land short of the field and in doing so the glider received substantial damage. The pilot had not seen or realised that the airbrakes had deployed and assumed the loss of airspeed was related to localised windshear.

CAA Occurrence Ref 10/1803

ZK-FHO Piper PA-23-250

Date and Time:	17-May-10 at 21:10
Location:	Napier
POB:	2
Injuries:	0
Damage:	Substantial
Nature of flight:	Training Dual
Pilot Licence:	CPL (Aeroplane)
Age:	21 yrs
Flying Hours (Total):	850
Flying Hours (on Type):	100
Last 90 Days:	30

The nose wheel retracted after landing when the pilot inadvertently raised the gear lever rather than the flap lever. The aircraft slid to a stop and no-one was injured. The operator reported that they taught pilots to do this based on the Aircraft Flight Manual. They have since issued a NOTOC advising pilots not to retract the flaps until the landing roll is complete, and to positively identify the flap lever before raising the flaps. It is also noted that the flap lever in this type of aircraft is situated where the gear lever typically is in other aircraft.

CAA Occurrence Ref 10/1886

ZK-EYG Piper PA-38-112

Date and Time:	5-Jun-10 at 16:15
Location:	Hokitika
POB:	1
Injuries:	0
Nature of flight:	Training Solo
Age:	22 yrs
Flying Hours (Total):	134
Flying Hours (on Type):	97
Last 90 Days:	114

During a fast taxi to the departure runway the aircraft struck an aerodrome wall with the left wing tip. The wing skin, rear fuselage cross brace, and outer leading edge were damaged. The pilot was rushing to become airborne after stopping to refuel prior to the last leg of his cross country flight. The pilot needed to meet the requirements of his flight authorisation to arrive back at his home aerodrome no later than ECT plus 30 minutes. He had departed late at the start of the cross country and although he had amended his route to save time, he still found himself time pressured towards the end of the day. The pilot has received additional dual training with emphasis on decision making and revision of ETAs in flight.

CAA Occurrence Ref 10/2430

ZK-HYO Kawasaki BK117 A-4

Date and Time:	21-Jun-10 at 12:20
Location:	Raglan
POB:	2
Injuries:	0
Damage:	Substantial
Nature of flight:	Other Aerial Work
Pilot Licence:	CPL (Helicopter)
Age:	46 yrs
Flying Hours (Total):	9611
Flying Hours (on Type):	360
Last 90 Days:	182

During the hover loading of a crewman from a confined area, the tail rotor received FOD damage. The confined area had been visited before without incident. However, on this occasion, the aircraft was carrying an external load and had also hovered over the bush while waiting for strops to be removed from the load. This may have led to previously undisturbed debris being drawn towards the helicopter when it repositioned to pick up the crewman.

CAA Occurrence Ref 10/2431

ZK-WAL Rans S-6ES Coyote II

Date and Time:	3-Jul-10 at 15:00
Location:	Potts River Mouth
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Flying Hours (Total):	250
Flying Hours (on Type):	200
Last 90 Days:	98

The aircraft was accelerating for takeoff when the left main gear leg failed, which caused the aircraft to turn left. The pilot tried to correct the turn but was unable to do so. Investigation revealed that a bolt had failed at the wheel socket end of the main gear leg, which may have allowed the wheel to pivot out of directional alignment. The issue is known and more frequent checks of the undercarriage should be made when operating from unprepared airstrips.

CAA Occurrence Ref 10/2590

ZK-GZP Schempp-Hirth Discus-2b

Date and Time:	18-Jul-10 at 15:50
Location:	Lake Station
POB:	1
Injuries (Minor):	1
Damage:	Substantial
Nature of flight:	Private Other
Age:	60 yrs
Flying Hours (Total):	535
Flying Hours (on Type):	390
Last 90 Days:	16

Approximately one km from the aerodrome, the glider flew into strong unexpected sink. The pilot headed toward an area where lift was expected. At about the same time, bright sunshine was experienced directly ahead obscuring the pilot's forward vision. Aware that there was a ridge ahead that he had to cross, the pilot looked down past the wing and saw that the trees appeared to be dropping away and thought that he had cleared the ridge. On looking forward again, a line of trees became visible which the glider would not clear. The pilot pulled back hard on the elevator but clipped the tops of the beech trees, the glider lost speed and fell through the trees to the ground. The pilot received minor injuries.

CAA Occurrence Ref 10/2786

ZK-EDR Jodel D.11

Date and Time:	24-Oct-10 at 16:30
Location:	Stratford Ad
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Age:	48 yrs
Pilot Licence:	RPL (Aeroplane) PPL (Aeroplane)

The aircraft undershot the approach to land and struck a gorse hedge adjacent to the threshold of the airfield. The pilot in command reported that he encountered sink on the final approach and was unable to arrest the rate of descent prior to contacting the hedge. The aircraft landed heavily, moving backwards and suffered substantial damage. The pilot and passenger were unhurt.

CAA Occurrence Ref 10/4107

ZK-PAB Tecnam P92S Echo

Date and Time:	17-Jan-11 at 10:00
Location:	Parakai
POB:	1
Injuries:	0
Damage:	Substantial
Nature of flight:	Private Other
Flying Hours (Total):	114
Flying Hours (on Type):	5
Last 90 Days:	11

The pilot was checking the validity of the airspeed indicator during a high speed taxi run on the runway. When he applied the brakes there was no response, and as a consequence the aircraft departed the end of the runway. The pilot received no injuries, but the aircraft sustained substantial damage. A CAA field investigation determined that the plastic brake tubing had failed at the left main wheel brake assembly attachment fitting, owing to a misaligned elbow fitting.

CAA Occurrence Ref 11/134

GA Defects

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

Key to abbreviations:

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

Piper PA-31P-350

Exhaust valve upper washer

Part Model:	LTIO-540-V2AD
Part Manufacturer:	Lycoming
ATA Chapter:	8530
TSO hours:	22.6
TTIS hours:	7559

During the third circuit, the right hand engine began running rough. Immediately prior to touch down the engine failed completely with the aircraft making a successful asymmetric landing. Maintenance investigation determined that the No. 4 cylinder exhaust valve upper washer (part no. LW16475) had failed, this allowed the exhaust valve to drop into the cylinder, contacting the piston. The No. 6 cylinder also had impact damage from No. 4 cylinder debris. The crankcase sump was removed for visual inspection for contamination. The No. 4 conrod was removed to inspect for serviceability. Bearing shells had no defects, and a visual inspection of camshaft and tappets was carried out and found satisfactory. The No. 4 and 6 cylinders, and turbocharger were replaced. The failed parts were sent to Lycoming for analysis.

Lycoming's analysis found it possible that the hydraulic tappet plunger assembly was not providing enough damping due to wear, this may have led to excessive and/or non-standard loading of the exhaust valve train. This excessive loading would have created a condition of high-stress, low-cycle fatigue which resulted in fracture of the upper exhaust valve spring seat.

CAA Occurrence Ref 10/624

Aerospatiale AS 355 F1

Starter generator oil seal

Part Model:	A250C20F
Part Manufacturer:	Rolls Royce
Part Number:	6854424
ATA Chapter:	8000
TSI hours:	31.45
TTIS hours:	31.45

Crossing into the head of the Franz Josef Glacier the No. 1 torque gauge started to fluctuate "in sync" with the oil pressure gauge so the aircraft was immediately landed. Both the No. 1 oil pressure and torque gauge were reading zero on landing, so the helicopter was immediately shut down. Oil was observed along both sides of the tail boom, the No. 1 engine cowl, and dripping onto the snow. The aircraft was tied down and all passengers and pilot were flown back to Franz Josef in another helicopter. An engineering team was flown in, and after inspection, the starter generator seal was replaced and the aircraft flown back to the maintenance base where the No. 1 engine was removed and replaced.

CAA Occurrence Ref 10/504

Cessna 180A

Battery cable

Part Manufacturer:	Cessna
ATA Chapter:	2400
TSI hours:	50

During an inspection while accident repairs were being carried out, the main battery cable to the starter solenoid was found with 90 percent of the insulation exposed over a length of approximately 4 inches. This occurred where the cable passes through the lower firewall. This cable carries battery power forward to the starter solenoid and has no short circuit protection other than the master switch solenoid. The only thing that prevented a major short circuit and possible fire was the sealant within the firewall grommet keeping the exposed wire just clear of the firewall structure.

Defects such as this are indicative of maintenance issues which are becoming more prevalent on ageing aircraft. Engineers need to be thorough in their inspections of older aircraft to detect age-related defects.

CAA Occurrence Ref 10/2810

Cessna A185F

Instrument panel shock mount

Part Manufacturer:	Cessna
ATA Chapter:	2510
TSI hours:	32.3
TTIS hours:	6016

The instrument panel was visibly displaced, sitting low on the left hand side. There was a very high possibility of heavy duty wiring terminals on the ammeter shorting to the airframe structure. There was no visible evidence of this having occurred, but it may have been the reason for a previously unexplained intermittent low voltage light during run-up. Nine of the 11 instrument panel shock mounts were found to be broken. It could be argued that as the complete panel is very heavy, the failure of just one mount would add load exponentially, resulting in reasonably rapid failure of the remaining mounts. It was noted that the rubber on the broken mounts was perished. The mounts were replaced.

CAA Occurrence Ref 10/949

Pacific Aerospace 750XL

O-ring

Part Number:	AS3209-009
ATA Chapter:	7900
TSI hours:	817
TSO hours:	2955
TTIS cycles:	683
TTIS hours:	2955

The pilot reported oil on the windscreen during flight. Maintenance investigation found that the hot section oil pressure line was leaking. The O-ring appeared to be twisted and was replaced. A ground run was carried out satisfactorily. The engineer notes that the aircraft had flown 817 hours since the last hot section inspection when the O-ring would have been replaced.

CAA Occurrence Ref 10/1515

Cessna U206F

Oil cooler gasket

Part Model:	IO-520F
Part Manufacturer:	Continental
Part Number:	654555
ATA Chapter:	7900
TSI hours:	43
TSO hours:	1643.75
TTIS hours:	2585.75

While returning to the aerodrome, the pilot noticed drops of oil starting to form on the windscreen. The pilot advised ATC and was given a priority landing. By the time the pilot landed, there was a large amount of oil on the windscreen. Maintenance investigation found an engine oil leak from the oil cooler due to a cracked base gasket. The gasket was replaced and approximately 1.5 litres of oil were added to the engine.

CAA Occurrence Ref 10/1604

Pacific Aerospace Cresco 08-600

Fuel nozzle fuel transfer tube

Part Model:	PT6A-34AG
Part Manufacturer:	Pratt and Whitney
Part Number:	3011155
ATA Chapter:	7310
TSO hours:	1200

The engine fuel nozzle tubes were inspected by the maintenance provider, as per CAA request. One tube was found to be possibly undersized, with a hand rather than machine engraved part number. The tube was compared to a suspect item held by the CAA, it did not match the characteristics and undersize dimensions of the suspect tubes. When measured at the bottom of the O-ring groove, the tube was at the minimum dimension as specified by the manufacturer. Therefore this fuel transfer tube is not considered to be one of the suspect items.

CAA Occurrence Ref 10/1517

Partenavia P 68B

Oil pressure tube

Part Model:	P68B
Part Manufacturer:	Partenavia
Part Number:	68-7.5525-3
ATA Chapter:	7920

On completion of a flight, oil was noticed dripping from the belly of the aircraft. Maintenance investigation found that the oil pressure line from the left hand engine had been worn through by the right hand aileron direct cable where both the cable and pipeline run down behind the emergency exit frame. Approximately 4 litres of engine oil had leaked into the belly of the aircraft.

The oil pressure line looked to have been remanufactured and was too long; this allowed the pipeline to rub against the aileron cable. A new pipeline was manufactured with particular care taken to ensure that the pipeline was well clear of the aileron cable.

CAA Occurrence Ref 10/1273

Piper PA-25-235

Cylinder

Part Manufacturer:	Engine Components Incorporated
Part Number:	AEL65102
ATA Chapter:	8530
TSI hours:	30
TTIS hours:	558.23

While climbing with a glider on tow, passing through 400 ft AGL, the engine began to run rough and RPM dropped to approx 2400. Carb heat was selected but had no effect. The glider was released and an immediate landing was made at the aerodrome. Maintenance investigation revealed that the No. 3 cylinder head had separated from the barrel. The cylinder which was in ECi group A, had been regularly inspected iaw DCA/LYC/216 (now superseded by DCA/LYC/218) and when last inspected in September 2009, the affected cylinder had a leak down rate of 73 over 80. The aircraft had flown a further 30 hours since the AD was last carried out. The matter has been referred to the manufacturer for assessment and rectification. The FAA has also been informed.

CAA Occurrence Ref 10/290

Robinson R44 II

Blades

Part Model:	R44
Part Manufacturer:	Robinson Helicopters
Part Number:	C016-5
ATA Chapter:	6210
TTIS hours:	1020.2

The helicopter received rotor blade damage after contacting vegetation. This happened during the pickup of trout fishermen from a confined area on a back country river.

CAA Occurrence Ref 10/660

AV KIWI SAFETY SEMINARS

Emergency Landings

Sometimes you need to put your aircraft down somewhere you just didn't plan for.

Most emergency landings turn out well, with no damage or injury, but too many end in preventable accidents.

Successful emergency landings all have one thing in common; aircraft control was maintained all the way to the ground.

Contrary to popular belief, it is not engine failure that causes most emergency landings, but non-mechanical factors, like running out of daylight, running into bad weather, and running out of ideas.

Regardless of the type of aircraft you fly, don't miss this opportunity to learn more about:

- the main reasons for emergency landings, and how to avoid them,
- practical tips on how to survive one.

Our presenters are Jim Rankin, RNZAF Instructor, and Carlton Campbell, CAA Training Standards Development Officer – both have lots of experience teaching pilots how to carry out successful emergency landings.

Kerikeri Aerodrome
Friday 27 May, 7:00 pm
Bay of Islands Aero Club

Whangarei Aerodrome
Thursday 26 May, 7:00 pm
Recreational Flying Club

North Shore Aerodrome
Wednesday 25 May, 7:00 pm
North Shore Aero Club

Ardmore Aerodrome
Tuesday 24 May, 11:00 am
ATC Hall

Tuesday 24 May, 7:00 pm
Auckland Aero Club

Tauranga Aerodrome
Tuesday 14 June, 7:00 pm
Tauranga Aero Club

Hamilton Aerodrome
Monday 23 May, 10:00 am
CTC Aviation Training, 131 Boyd Road

Monday 23 May, 7:00 pm
Waikato Aero Club

Taupo
Wednesday 15 June, 7:00 pm
Suncourt Hotel & Conference Centre
4 Northcroft Street, Taupo

New Plymouth Aerodrome
Monday 11 April, 7:00 pm
New Plymouth Aero Club

Gisborne Aerodrome
Monday 13 June, 7:00 pm
Gisborne Aero Club

Feilding Aerodrome
Wednesday 13 April, 6:00 pm
Flight Training Manawatu, Cardinal Hangar
Followed by Fish & Chip supper

Hastings Aerodrome
Thursday 16 June, 7:00 pm
Hawke's Bay & East Coast Aero Club

Palmerston North
Tuesday 12 April, 3:00 pm
Massey University Campus
Japanese lecture Theatre
(Opposite commercial complex)

Masterton Aerodrome (Hood)
Friday 17 June, 7:00 pm
ATC Building

Paraparaumu
Thursday 14 April, 7:00 pm
Paraparaumu Beach Golf Club (main club rooms)
376 Kapiti Road, Paraparaumu Beach

Wellington Aerodrome
Friday 15 April, 7:00 pm
Wellington Aero Club

CAA
CIVIL AVIATION AUTHORITY
OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa