

GA safety improving but problems persist

AN OVERVIEW of general aviation safety in Australia, the USA and Britain has revealed that, on the whole, accident rates have declined considerably over the past decade but also that most of them occur for the same old reasons.

Loss of control during the takeoff and landing phases, fuel mismanagement and weather-related accidents and incidents continue to make regular contributions to the statistics.

The increased use of GPS as the primary means of navigation is also starting to attract attention as more pilots lose traditional navigation skills because of it.

The numbers indicate very little variation between the three countries in accident causes and the phases of flight in which they occur.

The number of general aviation accidents in Australia has fallen from 257 in 1993 to 133 last year.

Within that improvement, the agricultural aviation accident rate has halved, charter/air taxi accident rates are down by one-third but private flying and training figures are virtually unchanged.

In the USA, the all-categories general aviation accidents rate has reduced by 28 per cent from 9.03 per 100,000 flying hours to 6.56 over the past decade.

Twenty years ago the rate was 10.67 per 100,000 hours or a very substantial 62 per cent higher.

Fatal accidents in the USA have declined by a similar proportion over the same period and in 2001 (according to US AOPA figures) were divided by category thus:

Personal 70.8 per cent, instructional 7.0 per cent, aerial application 4.4 per cent, business 4.4 per cent, positioning/ferry 3.6 per cent, aerial photography/survey 0.3 per cent, other aerial work 1.7 per cent, executive/corporate 1.0 per cent, other/unknown 6.8 per cent.

There is a difference between Australia and the USA in the definition of "business" aviation.

In Australia, private and business aviation are grouped together and include corporate flying.

In the USA, "personal" covers what Australia calls "private" and "business" is defined as that performed by non-professional pilots who fly themselves on business-related activities in an aircraft owned either by them or their company.

A USAOPA study into general aviation accidents in 2001 revealed some interesting facts, including one that shows (in relative population terms) that transport aircraft pilots flying light aircraft suffered more takeoff and landing accidents than students.

Others were that "manoeuvring flight" (especially the "buzzing" of ground features) caused more pilot-related fatalities than any other category; that loss of control during takeoff was 20 times more likely to occur than during landing; and that weather related accidents continued to feature strongly with "scud running" an ongoing problem as VFR pilots tried to beat worsening weather.

In the UK, it was found that three out of the five fatal general aviation accidents that occurred last year were in marginal weather conditions.

Australian Transport Safety Bureau (ATSB) statistics show that between 1991 and 2000, six per cent of all accidents were caused by fuel exhaustion or starvation.

During that period, 139 fuel-related accidents were recorded with 49 fatalities.

About 70 per cent of the accidents were caused by fuel starvation – the situation in which the aircraft has adequate fuel on board but its distribution is improperly managed by the pilot.

The ATSB lists pre-flight preparation (incorrect assess-

ment of fuel on board and/or miscalculation of fuel required), inattention to fuel supply and technical issues such as component failures and malfunctions as the most common factors in fuel accidents.

The bureau also notes that one in four of the pilots involved in fuel-related accidents had used inappropriate aircraft handling techniques after the engine lost power.

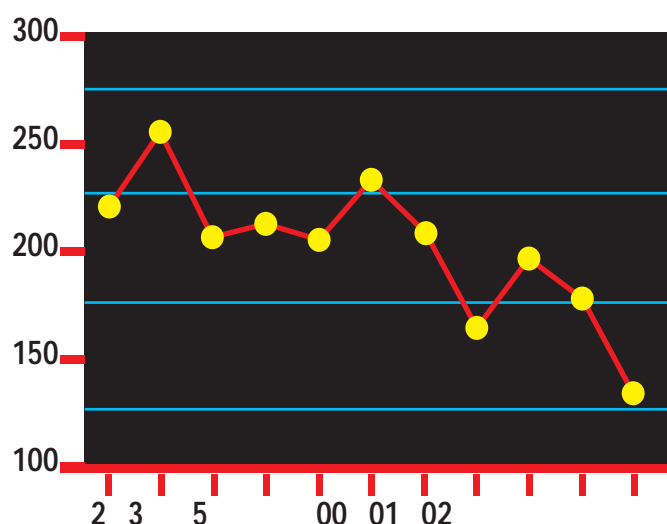
More pilots are trusting their

caused by the aircraft itself in certain circumstances); multi-path reflections caused by the signals bouncing off terrain and giving inaccurate range information; interference from other radio signals; and sunspots which can affect signal transmissions.

ICAO has recently endorsed the use of GPS as a sole service system provided the appropriate safeguards, such as frequency control, are put in place.

And the US has approved use

GA accidents, 1992–2002



ability to navigate accurately to the wonders of GPS, but like any other piece of mechanical or electronic equipment, it is capable of going wrong, sometimes with fatal results.

A recent information leaflet issued by the British Civil Aviation Authority (CAA) notes that while GPS has generally shown "exceptional reliability", it is not infallible.

Problems with GPS noted in the leaflet include: failure of the satellite clock or its occasional tendency to drift off accurate time; terrain shielding and dynamic masking (attenuation

of the technology for sole means navigation in Alaska.

GPS airmanship The CAA, meanwhile, offers some advice on the use of GPS which at the end of the day is just good airmanship: check that entered waypoints have not been changed without the knowledge of the pilot; on startup, check the status of the GPS and its battery; before taxiing, check the indicated position against the known position; and in flight, regularly check the GPS position against visual fixes or ground-based navigational aid fixes.

LAME scholarship announced

YOUNG PEOPLE IN regional Australia have a new incentive to pursue a career as an aircraft maintenance engineer.

The Civil Aviation Safety Authority is sponsoring eight special scholarships for apprentices training to become licensed aircraft maintenance engineers (LAMEs).

The scholarship program is a new initiative to help reduce the shortage of LAMEs in regional Australia.

CASA's acting Director of Aviation Safety, Bruce Gemmell, said it was difficult for young people to train as LAMEs in regional areas because most educational facilities are in capital cities.

"This means apprentice LAMEs are at a disadvantage compared to their city cousins because they have to travel to complete courses and often pay more for text books and tools," Mr Gemmell said.

"These scholarships will help one apprentice LAME from each state and territory by providing \$1,000 each year towards essen-



tial costs for two years.

"The money will go to cover expenses such as professional quality tools, mandatory text books or travel and accommodation costs for courses."

Mr Gemmell said CASA was establishing the scholarship program as part of its commitment to supporting the growth and development of the aviation industry.

"This is a modest scholarship program that will be a big help to an important group of young apprentices. CASA sees this as an

investment in the future because apprentices are critical to a high performance aviation maintenance industry. Engineers are the lynchpin of aviation safety and they are needed in regional Australia where aviation is an essential transport link for many communities."

Applications for the scholarships will be assessed by an expert panel made up of representatives from CASA, the Australian Licensed Aircraft Engineers Association and the New Apprenticeships Scheme.

Hyshot in the air

FURTHER development of the University of Queensland's Hyshot scramjet project remains in the hands of prospective overseas investors.

Project head Professor Allan Paull said most interest was from the United States, with NASA considering using scramjets for satellite launches. NASA representatives were due in Brisbane for talks as this issue went to press. There is also interest in military applications of the technology.

The Hyshot team is still searching the South Australian outback for stage one of the two-stage Terrier Orion Mk 70 rocket used to boost the scramjet payload to a speed of mach 7.6 on 30 July last year.

New stats on pax

CASA IS REVIEWING the average passenger weights used to calculate weight and balance as the nation's waistlines continue to spread.

The safety regulator will have new Australian estimates ready for parliamentary approval, under CASR Parts 121B and 121A, by the end of the year to replace averages set in 1988.

The average adult passenger weight, male or female, on aircraft with 30 seats or more will be deemed 84kg. Under the old scale, on a 100-seat airliner a man was said to weigh 82kg and a woman 66.9kg.

A sliding scale for children will be replaced by an estimate of 35kg for youngsters aged 2-13, while those under two will be accepted as part of the weight estimate of the accompanying adult.

Operators must still ensure they do not exceed aircraft maximum takeoff weights. They will be able to apply for variations on standard weights based on actual weight surveys done to a CASA formula.

The review follows changes to US FAA rules governing loading calculations. (See "Airline fatalities at their lowest in 10 years", next page.)

Toller steps down

CASA's DIRECTOR of aviation safety, Mick Toller, stepped down from the safety regulator's top job in August, saying leaving a little early was the best decision for the organisation.

Toller and Federal Transport Minister, John Anderson, came to a mutual decision that it was time for a change at the helm of CASA.

"Five years as CEO is streets above the average and it's probably better to get out a little bit early than when it's far too late - when you should have got out a year or two before," Toller said.

"In reality I was only looking at one more year in the position and I believe it is better for CASA to have somebody who is going to take a longer-term look at the major issues."



The decision to leave came as legislation to change CASA's governance arrangements was due to pass through Federal Parliament. Under the changes, CASA's board will be abolished and the director will report to the Transport Minister.

Toller said achievements dur-

ing his five years as director included bringing stability to CASA, introducing risk management to decision making, establishing a better business foundation and raising CASA's international profile.

He added that industry consultation has improved, the CASA Service Centre had been established and a range of practical regulatory changes had been achieved.

"I don't apologise for a moment that CASA is a tough regulator. I think the public supports us in that."

Current deputy director, Bruce Gemmell, is acting as director of aviation safety, with Rob Collins acting as deputy director.

The government is looking to make a permanent appointment of the new head of CASA in September.

Airline fatalities the lowest in 10 years

THE WORLD'S SCHEDULED and non-scheduled airlines (including regional and commuter operators) had a reasonably good first six months of 2003 in terms of fatalities, with the number of people killed in accidents just over half that of the same period last year. The number of fatal accidents (12) between January and June was the lowest in a decade. In these, 362 died compared with 712 from 18 fatal accidents in 2002.

These figures are well below the average of 430 deaths and 19 fatal accidents for the first six months of each year over the past decade. Geographically, the fatal accidents occurred in the former Soviet Union (3), Africa (2), Turkey (2), Indonesia (1), the USA (1), New Zealand (1), Indonesia (1) and France (1).

The biggest single cause of accidents is still controlled flight into terrain (CFIT), accounting for half of the accidents in the first six months of the year. All occurred during non-precision approaches. Four of the fatal crashes were caused by technical or maintenance problems, of which two gave flight crews no chance of saving themselves or their passengers. One crash resulted from suspected crew incapacity and the cause of one



BRADLEY MASON/STOCK XCHNG

remains unknown.

The statistics reveal that airlines from developing countries are still most likely to have accidents, indicating a need for assistance to improve their safety standards and overall aviation safety cultures. It is noteworthy that five of the fatal accidents involved aircraft flown by operators based in former Soviet Union states.

One accident sparked a regulatory change which many observers considered to be well overdue – an increase in the stan-

dard weight allowance for passengers and their baggage when calculating weight and balance data.

Although the primary cause of the Air Midwest Beech 1900D crash immediately after takeoff from Charlotte Airport in South Carolina in January is now thought to be misrigged controls, investigations also revealed that the aircraft – with a full load of 19 passengers on board – was substantially overweight.

From July, the US Federal Aviation Administration instructed

airlines that they must use heavier weights in their loading calculations. These are based on the assumption that each adult passenger weighs 190–195lb (86–88kg) including carry-on baggage (depending on the season) and that their checked baggage weighs 25–30lb (11–14kg).

The previous assumptions were 180–185lb (82–84kg) and 25lb (11kg), respectively. This is the first change to the USA's standard weights since 1995. See "New stats on pax", (opposite page).

First CAP Airvan delivery

AUSTRALIA'S Gippsland Aeronautics GA-8 Airvan eight-seat utility single reached a new milestone on July 17 when the first aircraft for the USAF Auxiliary, Civil Air Patrol (CAP) left Australia on its delivery flight.

The aircraft was displayed at the Experimental Aircraft Association Air Venture 2003 show at Oshkosh on the completion of its trans-Pacific journey. It featured strongly in the Civil Air Patrol exhibition.

The Airvan was flown to the USA by well-known ferry, agricultural and warbirds pilot Steve

Death, travelling from Victoria's La Trobe Valley to California via Lord Howe Island, Norfolk Island, Samoa, Christmas Island and Hawaii.

The longest leg was between Hawaii and Mojave, California, a distance of 2,150nm (3,980km) and involving 16–17 hours flying time.

The aircraft was equipped with a 1,000-litre cabin ferry tank for the journey, giving it an endurance of up to 24 hours.

The Airvan was successfully evaluated by the CAP last year, with an "indefinite delivery



GIPPSLAND AERONAUTICS

/indefinite quantity" three-year supply contract awarded to Gippsland Aeronautics in January 2003.

The CAP operates 550 light aircraft in the USA and logs more than 120,000 flying hours each year.

FAA repair stations under investigation

A REVIEW OF maintenance and repair standards on work performed by outside contractors for US airlines has revealed some poor work practices and many mistakes.

The review, by the US Department of Transportation Office of Inspector General, found "significant errors" in 86 per cent of the Federal Aviation Administration (FAA) approved private repair sites surveyed, both in the USA and in other countries.

The DoT criticised the FAA for failing to clamp down on these repairers, so the FAA is introducing new and tighter procedures that will come into force in October.

The procedures are intended to improve standards, increase surveillance and develop better procedures and training for contract maintenance workers.

It was found that an increas-



ing number of airlines were relying less on in-house maintenance and more on outside contracting. The new regulations will require a minimum of 18 months maintenance experience for foreign repair station supervisors, who must have both written and oral English language skills.

Problems discovered over the

16-month survey included "use of improper parts and equipment, insufficient documentation that workers were properly qualified and trained, inadequate policies and procedures, and uncorrected repetitive deficiencies". About 4,600 domestic and 650 overseas repair stations have FAA approval to perform maintenance on US-registered aircraft.

New eye in the sky for Coastwatch

SURVEILLANCE AUSTRALIA has contracted Canadian-based Radarsat International to supply satellite imagery data for use in the Australian Customs Service's Coastwatch program.

The agreement includes an important local element through Adelaide's Apogee Imaging International, which will manage the satellite data ground processing element of the system. The Radarsat program offers advanced synthetic aperture radar (SAR) capability, with the satellite making four passes every 24 hours over Australia's east and west coasts.

This provides Coastwatch with the ability to detect vessels in an area 300km wide and up to 3,000km long on each satellite pass.

European SE-IFR coming

THREE SCANDINAVIAN countries - Denmark, Norway and Sweden - are likely to adopt the draft European regulation on single-engined instrument flight rules (SE-IFR) operations ahead of a European JAA final agreement on the issue.

Current JAA rules require the use of multi-engined general aviation aircraft for commercial passenger or freight operations in IFR and at night, despite the approval of SE-IFR in many other parts of the world including the USA, Canada and Australia.

The European general aviation community has been urging the regulatory authority to bring Europe's rules into line with most of the rest of the world because the statistics show that modern, single-engined turboprops such as the Cessna Caravan, Pilatus PC-12 and Socata TBM700 are safer than the elderly piston twins they are gradually replacing.



Spain and Switzerland have already adopted the JAA's notice of proposed amendment on the issue as national law. The new European rules covering SE-IFR operations are expected to be introduced before the end of the year.

LAST FLIGHT SAFETY FORUM FOR 2003!

20 September, Adelaide Convention Centre - North Terrace, Adelaide.

featuring



An 'Aviation' version of popular TV game shows

Four teams of audience volunteers will answer questions sourced from *Flight Safety Australia* magazine quiz pages.

Prizes will be awarded to winning teams and for audience participation.

View the flight safety forum program online at <http://www.casa.gov.au/hotopics/seminars/topics/flightsafety.htm>.

phone Safety Promotion on 131 757



CIVIL AVIATION
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AUSTRALIA

Airbus on top of the charts

FOR THE FIRST TIME in its history, Airbus has beaten Boeing in the number of deliveries made during a six-month period. The first half of 2002 also saw the European manufacturer again outsell Boeing.

Between January and June 2003, Airbus recorded 199 firm orders for its airliners (net 175 after cancellations) and delivered 149. Boeing received 108 orders (increasing to 109 after adjustment) and delivered 145.

The US manufacturer plans to deliver about 280 airliners in 2003 (down from 380 last year) while Airbus is maintaining a more constant delivery rate of about 300 per annum. Once again Airbus has a much more substantial order backlog – of 1,531 aircraft compared with Boeing's 1,116.

Airbus net firm orders (and deliveries) for the period were: A300 – 6 (6); A320 family – 94

(120); A330 – 33 (16); A340 – 21 (7); and A380 – 21 (0). Boeing's figures were: 717 – 2 (6); 737 – 96 (85); 747 – 1 (10); 757 – 1 (9); 767 – 8 (16); and 777 – 3 (19).

The Airbus A310 received no orders and none was delivered, although Airbus still has a backlog of five for the aircraft, which is now an almost completed program. A300 orders and deliveries are now almost exclusively for freighter versions and both have been in effect superseded by the A330 in the passenger market.

The eight 767 orders were from Japan Airlines and were a much-needed boost to a program that appears to be running out of steam, while the 757 continues to languish and is now, by Boeing's own admission, "threatened". Neither the 767 nor 757 has a natural successor in Boeing's product range.



High-flying tigers

EIGHTY-ONE-year-old World War II pilot John Bailey, of Perth, will take to the skies again later this year to compete in the Great Tiger Moth Air Race and memorial fly-past celebrating 100 years of powered flight.

Bailey, who no longer has his pilot's licence, will be the passenger in a Tiger Moth flown by his son, Kevin. The beautifully restored aircraft was used as an Air Force trainer during the war and is similar to the one Bailey learned to fly before gaining his wings in December 1941.

Bailey says he prefers the slower pace of the Tiger Moth biplanes, and enjoys having his "head out in the air stream with plenty of time to look around".

He holds fond memories of training in Tiger Moths and describes them as "a lovely little aeroplane that is not easy to fly, but have a very forgiving nature".

More than 40 Tiger Moths from around Australia will compete in the two-day event, which starts from the Royal Newcastle Aero Club on October 25 and 26. At 7am on Sunday, October 26, pilots will take part in a fly past under the Sydney Harbour Bridge in honour of those who flew in World War II.

Bailey, who managed to survive four years of wartime flying, is travelling from Western Australia for the race.

Army tents and similar facilities provided for pilots and pas-



World War II pilot John Bailey (right) will be reliving his wartime flying training when he takes part in the Great Tiger Moth Air Race.

sengers will echo the old days.

An official presentation will be held on the evening of October 26 with special guest and patron Nancy Bird-Walton. The pilots of the aircraft with the highest points will be presented with the Boyd Munro Trophy, and a State

of Origin Prize will be awarded to the state team with the highest points accrued from three pilots.

For more information, contact Fiona Carolan on 02 9328 2480.

Angela Phillips

Capital infusion for New Piper

GENERAL AVIATION manufacturer New Piper Aircraft has new owners following a buyout and recapitalisation by American Capital Strategies Ltd, which now holds 94 per cent of the company's voting equity.

American Capital purchased \$US57m of Piper's senior debt for \$US34m and has also provided a revolving loan facility. In addition, American Capital exchanged \$US22m of the purchased senior debt for common equity in Piper.

Affiliates of Exeter Capital Partners, a private equity firm and long-time Piper investor, made an additional common equity investment of about \$US1m for the remaining six per cent of the company.

Piper chief executive Chuck Suma says American Capital will provide the stability and long-term commitment to ensure Piper's future. Like most light aircraft manufacturers, Piper was



recently forced to reduce production rates as the downturn continued.

The company will deliver 232 aircraft this year compared with 290 in 2002.

Plans include substantial upgrades across Piper's product range in an attempt to stimulate

brand awareness and sales. Areas of focus include avionics, powerplants (including the use of compression ignition engines) and construction techniques. The goal, according to Chuck Suma, is to have "a more efficient product line which is modular in concept".

Maintenance errors cited in crash

LOSS OF pitch control resulting from the disconnection of the right elevator control tab has been cited as the probable cause of the crash of an Emery Worldwide Airlines DC-8 aircraft near Sacramento, California in 2000.

The investigation into the accident led the US National Transportation Safety Board to issue 15 recommendations to the Federal Aviation Administration, including provisions for revised maintenance procedures, improved training for flight crews, the redesign of DC-8 elevator control tab installations, and replacement of DC-8 aluminum elevator geared tab crank arms.

After reviewing the investigative team's report, the NTSB concluded the accident was caused by a failure to properly secure and inspect the bolt attaching the right elevator control tab crank fitting to the pushrod.

Emery Worldwide flight 17

crashed into an auto salvage yard on February 16, 2000, while attempting to return for landing shortly after departing Sacramento Mather Airport. The DC-8 was on a scheduled cargo flight to Dayton, Ohio. The three crewmembers aboard were killed, and impact forces and a post-crash fire destroyed the aircraft.

The NTSB found that at some time after the previous takeoff (from Reno, Nevada) and before the accident takeoff roll, the bolt connecting the right elevator control tab crank fitting to the pushrod migrated out of the fitting, allowing the control tab to disengage from its pushrod and shift to a trailing edge down position.

As the aircraft accelerated during the takeoff roll, the right control tab crank fitting contacted the disconnected pushrod, restricting the upward movement of the control tab's trailing

edge and leaving it in an extreme downward deflection.

As a result, the aircraft's elevator surfaces were driven to command an extreme nose-up pitch attitude that the pilots were unable to overcome despite large nose-down forces applied to the control columns.

The NTSB judged that the maintenance errors that eventually resulted in the DC-8 crash occurred either during the most recent heavy maintenance "D" check (November 1999) or during subsequent maintenance of the aircraft.

However, the board was not able to determine precisely when the improper maintenance work was done.

A synopsis of the Emery Worldwide accident investigation report, including the findings, probable cause, and safety recommendations is on the publications page of the NTSB website at www.nts.gov.

SARS recovery well underway

"THE WORST is over and the world's airlines are on the road to recovery," according to the director general and chief executive of the International Air Transport Association, Giovanni Bisignani. However, he warned the "road will be long" and that a new, low-cost structure will be vital to airlines in the future.

Preliminary IATA figures for June show an overall 11.8 per cent drop in international passenger traffic compared with the same month of 2002, with the SARS-hit Asia-Pacific region experiencing a 35.8 per cent decline. Despite this, the figures show a "considerable improvement" on the 21 per cent overall traffic reduction in May and the 55 per cent decline recorded in the Asia-Pacific region.

According to the Australian Bureau of Statistics, international visitor arrivals in Australia were up seven per cent in June compared with the previous month, but down nine per cent from June 2002 figures. The number of visitors from Hong Kong was up 24 per cent on June 2002, while arrivals from South Korea saw 23 per cent growth.

On the debit side of the ledger, arrivals from Malaysia, Singapore, New Zealand and the USA were down, but not as much as those from Japan and Germany, which dropped 41 per cent and 18 per cent, respectively.

The number of Australians travelling overseas in June was up seven per cent compared with May but this was still 12 per cent below the level achieved in June 2002.

Australians travelled in greater numbers to the USA, New Zealand and Fiji, but Singapore, Indonesia, Thailand and Malaysia recorded substantial drops, mostly as a result of SARS but in one case – Indonesia – also due to concerns about instability and the fear of terrorist attacks.

Smaller airlines fight for their share

RECENT COMPLAINTS by Virgin Blue and Regional Express (Rex), that they are being given insufficient federal government travel business and that Qantas is dominating that market, have been heard. Transport Minister John Anderson has announced that the government will "work towards the objective of 10 per cent of government travel on the Canberra-Sydney route going to smaller airlines".

Rex recently withdrew from the Melbourne-Canberra route due to ongoing losses and continues to lose on Sydney-Canberra. The airline complained about Qantas' dominance in the

area of government contracts, which it described as being unfair. Under the new plan, government departments and agencies will be required to report regularly to their minister and the Secretary of the Department of the Prime Minister and Cabinet on their performance against the objective.

In addition, Qantas Business Travel – which provides many government departments with travel agency services – has guaranteed to provide departments with "the best fare of the day or the best logical fare", according to Anderson. He adds that departments and agencies

should now be seeking opportunities to negotiate with the smaller airlines for additional services and facilities in return for increased patronage. An independent assessor has been appointed to monitor the situation.

Rex says it will now continue Sydney-Canberra services and that it is confident it could carry "much more than that market share if the system was working properly". Virgin Blue says the government should go even further and introduce a "best fare of the day" policy across the whole network regardless of the airline involved.



A life dedicated to making aviation a safer industry

THE WORLD of aviation is mourning the loss of Bruce Byers who died on 6 July 2003, aged 54, after a short illness.

He was widely acknowledged in Australia and overseas as a leader in his area of aviation safety.

Byers was born in Sydney and graduated as an aeronautical engineer from the University of NSW in 1970. He worked as a structural design engineer on the Nomad aircraft for the Government Aircraft Factory in Melbourne before joining the

Department of Defence in Sydney, working on naval aircraft.

He joined the Civil Aviation Safety Authority's predecessor in the mid-1980s.

Byers was passionate about cabin and cockpit safety. Eighty per cent of accidents are survivable, and he focused his work on that 80 per cent to ensure that anyone involved in a crash had the best possible chance of surviving.

In 1997, Byers won a Churchill Fellowship, travelling and studying aircraft safety in Europe for

six months.

His expertise and international standing assisted the development of world-leading standards in Australia for single-engine regular public transport aircraft in instrument flight rules conditions.

His interests included photography, bushwalking, and supporting the Churchill Foundation.

He recently retired from being a regular hockey player.

Byers is survived by his wife, Meg, two sons and two grandchildren.

Fuel cell future

BOEING'S RESEARCH and Technology Centre in Madrid – in conjunction with several other organisations, including Austria's Diamond Aircraft – has launched a project to explore the use of fuel cell technology in aviation.

The project will evaluate the potential application of fuel cells in commercial aircraft. As part of these evaluations, an electric motor powered by fuel cells will be developed and demonstrated in a Diamond light aircraft provided by the manufacturer. Britain's Intelligent Energy will supply the proton exchange membrane fuel cell hardware and Spain's Sener will design and build a fuel cell controller unit.

Others involved in the project are Spain's Aerlyper (electric motor/airframe integration) and the USA's Advanced Technology Products, which will supply the motor, batteries and controllers as well as undertake flight testing of the aircraft.

Work to integrate the fuel cells into the demonstrator airframe was planned to be under way when *FSA* went to press. Initial flight tests are slated for late 2004 or early 2005. While the test results are not expected to lead to any immediate production applications for fuel cell technology, it is hoped they will make a substantial contribution to its eventual routine use in aircraft.

New ICAO chief

TAIEB CHERIF from Algeria has embarked on a three-year term as secretary general of the International Civil Aviation Organization (ICAO). He succeeds Renato Cláudio Costa Pereira (Brazil), who held the position since 1997.

Chérif has worked in civil aviation for more than 30 years and has represented Algeria on the ICAO Council since 1998. He was active in the air transport and finance committees of the council and in specialised working groups.