

Regulation Impact Statement

Flight and Ground Crew Licensing

**Proposed Civil Aviation Safety Regulation Part 61,
64, 141 and 142.**

Background

CASA is responsible for regulating aviation safety, including the licensing of pilots and flight engineers (known as flight crew). CASA authorises flight crew to perform their duties by issuing licences, endorsements and ratings and by providing for other forms of authorisation in the form of delegations, approvals, exemptions and certifications.

Australia's flight crew licensing regulations conform to a high degree with the international standards set by the International Civil Aviation Organization (ICAO).

Flight crew training in Australia is carried out by over 200 flying schools, authorised for the purpose and oversighted by CASA, as well as by airlines and other commercial operators who conduct more advanced training for their own flight crew. Most pilot training is self-funded by the individuals concerned, some of whom are training as a leisure activity or to assist in a business, together with a smaller proportion planning for a career in aviation.

A significant proportion of the students undertaking flying training and those who obtain a flight crew licence are overseas residents. Approximately one third of the new licences that CASA issues each year are to overseas residents who intend to use the qualification outside Australia.

Flying training is the cornerstone of much of aviation, and arguably an influential element in the long term safety performance of the industry. Correct behaviours and attitudes and adequate skills and knowledge acquired during flight training form the basis for how pilots conduct aircraft operations safely.

Of the 34 000 licensed pilots in Australia 13 500 hold professional licences and of these 2600 hold flight instructor ratings. There is also a large number of sport aviation pilots, not licensed by CASA, that are unaffected by the options considered in this Regulation Impact Statement.

Problem

Australia's current flight crew licensing regulations have been in place for over twenty years without significant review or revision. The various regulatory parts, orders and instruments that make up the current flight crew licensing regulations are at times inconsistent with current regulatory drafting standards.

A review of the existing flight crew licensing regulations has found a limited number of inconsistencies with the international standards published by the International Civil Aviation Organization (ICAO). Australia is a signatory to the Convention on International Civil Aviation committing Australia to implement the ICAO standards. The main inconsistencies between the current flight crew licensing regulations and the ICAO standards include:

- Lower standards for helicopter co-pilot instrument ratings
- Not requiring a multi-crew flight test for an Air Transport Pilot Licence
- Use of endorsements to provide regulatory approval to operate particular aircraft rather

than the use of ratings

- Not requiring businesses providing flight crew training to have an approved safety management system
- Not requiring businesses providing flight crew training using a flight simulator to be an approved training organisation

These inconsistencies with ICAO standards can reduce the likelihood of international students selecting Australia to train for a flight crew licence and for Australian flight crew licences to be accepted by other countries. It is important to note that it is not possible to quantify the extent of the risk or to define a point at which the level of ICAO inconsistency would threaten Australia's international reputation or ability to trade in the international aviation market.

The current flight crew and ground crew licensing regulations are administratively complex and generate unnecessary compliance costs in certain areas. A review of the current regulations identified 3 areas of administrative complexity:

- A requirement for CASA authorisations to undertake specialised activities, including glider towing, formation flying, spinning or aerobatics. The authorisations require ongoing renewal that imposes a cost on the holders of such authorisations.
- Requiring businesses that undertake flight crew training exclusively to hold an Australian Air Operator's Certificate with the associated administrative costs when these certificates are primarily designed for businesses that have a core business function of operating aircraft, such as to carry fare paying passengers.
- Requiring flight instructors to be appointed as a CASA delegate to administer flight tests when it is possible to allow flight instructors to undertake flight tests if they hold a suitable flight examiner rating.

In terms of safety issues, the regulations do not fully account for the advancements in the science of human factors. Human factors is the study of humans interacting with systems, particularly in high-reliability safety-critical industries (including, maritime, rail, oil/gas, nuclear/hydro power, aviation, mining and fire-fighting). Human factors research provides advice on human capabilities and limitations when interacting with complex (i.e. aviation) systems and how human error can lead to aircraft accidents.

It is now accepted that human error is accountable for up to 80% of all aircraft accidents world-wide (p.2, Shappell and Wiegmann 2004). The Australian Transport Safety Bureau (ATSB) in an analysis of the causes of accidents over the period from 2001 to 2007 found that:

There were 322 individual action safety factors identified for the 566 investigated occurrences from 2001 to 2007 ... The majority (73 per cent) of individual actions associated with operational-related investigated occurrences involved aircraft operation actions, that is, actions by the pilots or flight crew (p. 96, ATSB 2009)

In addition, concern has been expressed to CASA during industry consultation by some individuals that a significant proportion of basic flight instruction is often delivered by the least experienced pilots who take up flight instruction as a way of building aeronautical

flight experience before moving on to airlines. An implicit concern was that these instructors may not have sufficient training or experience to provide high quality flight instruction.

Whilst there is likely to be a link between the quality of training and flight instruction that a pilot receives and the subsequent accident risk for that pilot, it is difficult to observe a direct causal relationship between quality of training and future accident risk probabilities. Part of the difficulty is observing the quality of training that a pilot receives and attributing causation of a pilot's action to the quality of the training that may have been many years earlier.

Aviation has traditionally relied on regulations to set safety and licensing standards and, because of the large number of small organisations involved in flight training, it is not practical to expect industry to set its own training standards. It is fair to say that the flight training industry generally does not have the resources to develop or keep abreast of the latest in training methods and equipment in the same manner as large airline operators. Moreover CASA has a responsibility to provide for consistent standards across the whole of the industry. It appears that the most practical way to provide for improved flight training standards is to regulate for training requirements incorporating well-accepted advances in training methods.

Options

Option 1: Status Quo

The current regulation of pilot licensing is based on a system of licences, ratings and endorsements. A licence is the first and foremost qualification obtained by a pilot and current regulations are based on 4 major licence types (Table 1).

Endorsement

After obtaining a licence a pilot can then train and apply for an aircraft endorsement or rating. An aircraft endorsement is a qualification/approval to operate a particular aircraft type or class of aircraft. The requirements for endorsements are generally internationally consistent and Australia does not have unique endorsement requirements.

Pilot Ratings

A pilot rating is a qualification that extends the privileges of the licence enabling the holder to engage in various operational activities following further training and testing, for example ratings can be obtained for flying at night or solely by reference to the aircraft's instrument panel, to teach others to fly or to spray chemicals, seeds or fertilisers for agricultural purposes.

The five types of rating are:

- Night VFR
- Private Instrument Rating
- Instrument Rating
- Agricultural
- Instructor

Table 1: Licence type requirements

Licence Type	Licence Requirements
Student	<ul style="list-style-type: none"> • be at least 16 years of age • meet the general English language proficiency standard • have a current aviation security status check
Private	<ul style="list-style-type: none"> • be at least 17 years of age • hold a valid English language proficiency assessment of at least level 4 • hold or be eligible to hold a flight radiotelephone operator licence • have passed a written examination and flight test • have a total of 40 hours flight time in an aeroplane (or 50 hours for a helicopter) • have a current aviation security status check
Commercial	<ul style="list-style-type: none"> • be at least 18 years of age • hold a valid English language proficiency assessment of at least level 4 • hold or be eligible to hold a flight radiotelephone operator licence • have a current aviation security status check • have passed a written examination (current exam consists of 7 parts) and flight test for CPL • have completed training and gained the necessary flying experience - one of the following: <ul style="list-style-type: none"> ○ have passed a CASA approved integrated CPL course where the theory and flying training are co-ordinated and acquired 150 hours in an aeroplane (or 105 hours for a helicopter) ○ have acquired at least 200 hours aeroplane flight time (or 150 hours for a helicopter)
Air Transport	<ul style="list-style-type: none"> • be at least 21 years of age • hold a valid English language proficiency assessment of at least level 4 • have a current aviation security status check • hold or be eligible to hold a flight radiotelephone operator licence • have passed a written examination (current exam consists of 7 parts) • hold or have held a command multi engine aeroplane instrument rating • have a total of 1500 hours flight time including at least 750 hours as pilot of a recognised aeroplane or helicopter.

Method of issue and validity

Competency for the issue of a pilot licence, endorsement or rating is measured through examinations of theoretical knowledge and practical assessments to determine the level of a person's skill and knowledge following training and the accumulation of experience (i.e. hours) as well as medical examinations to assess a person's fitness to hold the licence. Almost all of these examinations are conducted by the aviation industry or medical examiners on CASA's behalf.

Once issued, a flight crew licence is valid for life, however, the holder is required to undergo regular flight and medical checks. The frequency and degree of these assessments depend

upon the nature of the operations being conducted; the more complex the operation the more exacting the checks. Aircraft endorsements are also valid for life, however, the onus is on the holder to ensure he or she has completed refresher training on the aircraft if he or she has not flown that type for some time. Some ratings are valid while the licence is valid, others are subject to periodic flight checks.

Training organisation approval

There are two broad types of organisations that currently provide flight crew training:

- Businesses that have a core function of providing pilot training that generally do not have a significant business operating aircraft to transport passengers or freight. These businesses generally provide training for the pilots of smaller aircraft.
- Aircraft operating businesses that have a core function of operating aircraft that in addition to this function undertake pilot training and the issuing of flight crew endorsements/ratings mainly for their own staff. These are generally large businesses employing multiple pilots that provide training specific to their type of business, such as training and endorsements for large aircraft requiring two pilots.

Options for improvement

The existing regulations currently consist of a number of different legislative parts, orders and instruments. As a starting point CASA is proposing to consolidate the existing regulations into four new parts that will be drafted to modern legislative drafting standards:

- Part 61: Flight Crew Licensing
- Part 64: Authorisations for non-licensed personnel (Ground Crew)
- Part 141: Recreational, private and commercial pilot flight training other than certain integrated training courses
- Part 142: Integrated and multi-crew pilot flight training, contracted recurrent training and contracted checking

The proposed parts will retain the essential requirements in terms of experience and training requirements for licenses, ratings and endorsements from the current regulations. The existing regulations largely conform to the international standards published by ICAO and generally adopted in most developed aviation countries, however there are some areas of international inconsistency and administrative complexity in the current regulations.

To address the problems outlined above, in particular to better align with international standards, CASA is considering the following options for inclusion in the four new parts that would represent a deviation from the current regulations:

- A multi-crew flight test for an Air Transport Pilot Licence
- A new recreational pilot licence
- A simplified system of category, class and type ratings
- A new cruise relief rating
- Eliminate co-pilot qualifications
- Introduce specialised activities ratings to replace CASA authorisations
- A new low-flying rating

- A requirement for ongoing flight reviews for ratings
- Introduce specialist instructor ratings
- Replace delegations for flight testing with ratings for flight examiners
- Revise the regulatory standards for training organisations

The options for the regulatory standards that apply to training organisations are based on the complexity of the training provided, with two broad streams of training identified.

Integrated training organisations

Training organisations that provide integrated training which is intensive training that integrates aeronautical knowledge with flying training, will be permitted to provide training for most licence types, including for single and multi-pilot aircraft types. The training business will be required to hold an Air Operator's Certificate, prepare an exposition and introduce a Safety Management System. The approval will also require the organisation to provide training plans and syllabuses for the training they propose to conduct.

Non-integrated training organisations

Training organisations that provide non-integrated training which is typically part-time with the individual taking responsibility for the timing and completion of the course will be permitted to provide training for recreational, private and commercial licences that are single pilot aircraft licences.

The training business will not be required to hold an Air Operator's Certificate, however, there will be a requirement to prepare an exposition and introduce a Safety Management System. The Exposition must describe how the operator intends to comply with the requirements when conducting flight training activities. These businesses may elect to utilise training plans and other course materials provided by CASA to minimise the impact of preparing the exposition. Businesses that only undertake training utilising a flight simulator will not be required to have a safety management system but will be required to have a quality management system.

Ground crew

The proposed option is for ground personnel who use aeronautical radios or taxi an aeroplane to be authorised under Part 64. CASA will no longer require a person to hold an authorisation issued by CASA to taxi an aeroplane. The person simply must demonstrate competency in taxiing an aeroplane to flying instructor within the previous 5 years. CASA will now recognise training conducted by a Registered Training Organisation for the grant of an authorisation to use an aeronautical radio in addition to the existing training conducted by flight instructors and aircraft operators that have a training and checking system.

Essentially only two options are considered viable; the status quo or ICAO standards because:

- There are existing flight crew licensing regulations and approximately 80% of the requirements in these regulations will be retained.
- Australia is a signatory to the Convention on International Civil Aviation committing Australia to implement ICAO standards.

- The differences proposed in the single ICAO option are to address the problem of ICAO inconsistency in the current regulations. There is only one option for addressing the problem of ICAO inconsistency which is to propose adopting the ICAO standard.
- Whilst it is possible to consider alternative regulatory standards to either the current Australian regulations or the proposed ICAO standards, these are not considered viable primarily because they would not address the problem of inconsistency between Australia's current regulations for flight crew licensing and the ICAO standards for flight crew licensing.
- There is a lack of alternatives to ICAO standards that could exist in other countries because most countries are signatories to the Convention on International Civil Aviation and have adopted ICAO flight crew licensing standards in their regulations.
- ICAO standards provide the basis for trade in international aviation products. For trade in international aviation products to be facilitated requires recognition that the safety standards of businesses operating in one country will be acceptable to other countries. For example US authorities must accept that Australian pilots are appropriately trained and qualified to operate safely for Australian aircraft operators to provide flights to and from the USA.

Impact

Persons Affected

The persons and organisations likely to be affected are:

- existing and prospective flight crew licence holders;
- air operators and flight training operators; and
- the travelling public and the community.

Adopting ICAO flight crew licensing standards

Air Transport Pilot Licence (ATPL)

A multi-crew training component and flight test for the issue of the Air Transport Pilot Licence will be introduced. CASA has not specified the time required for the training component, but comparable European training requires between 16 and 20 hours of training shared with another pilot. As the simulator time is shared the cost of the training per pilot is between 8 and 10 hours of simulator time. It is estimated that the introduction of the multi-crew training will cost approximately \$8000 per pilot if conducted in a flight simulator (Table 2).

Based on averages over the last five years, the requirement will affect approximately 580 pilots per year who apply for an ATPL licence. However, approximately 50% of these pilots are employed in the airline industry and are currently required to undertake equivalent training under existing training and checking regulations. The introduction of the training will not represent a new cost for these pilots. Excluding the airline pilots, 290 new ATPL pilots will be required to undertake the multi-crew training with an estimated annual cost of \$2.3m (Table 2).

The multi-crew flight test will have a duration of approximately 2 hours and can be performed

in a suitable aircraft or flight simulator. Based on 580 pilots undertaking the test per year the annual industry cost will be \$0.9m (Table 2). CASA has assumed based on consultation with industry that a high proportion of these flight tests will be conducted in a simulator. It is however possible for pilots to undertake this test in an aircraft at a similar cost (Table 2).

In the context of the current requirements for an ATPL, in terms of time and cost, the requirement for multi-training and a flight test are relatively minor additional requirements. The current regulations require theory study in advanced aerodynamics, air law, advanced navigation, human factors, performance and loading, flight planning and meteorology and passing examinations on these subjects. This takes most pilots between 9 and 12 months to complete. In addition, the pilot must have at least 1500 flying hours experience with specified time as pilot in command.

The increased cost of obtaining an ATPL from the introduction of the multi-crew training and flight test may reduce the number of pilots applying for an ATPL, however this is considered to be unlikely. The primary reason is that the cost of the additional training and flight test only represents a small proportion of the total cost of obtaining an ATPL and for many pilots the cost of obtaining an ATPL is paid for by their employer. The relatively small one off cost to the employer of ATPL holders is considered to be so small that it would not affect the relative operating costs of the affected aircraft flown by holders of an ATPL or the price of products related to these aircraft (generally in the form of passenger flights) to consumers.

Table 2: Cost of multi-crew training and flight test

<i>Multi-crew training cost components</i>	
Multi-Crew simulator cost per hour ¹	\$800
Hours per pilot for training ²	10
Total cost per pilot	\$8000
Cost for 290 pilots	\$2.3m
<i>Flight test cost components</i>	
Hours per test	2
Simulator cost per hour	\$800
Cost for a simulator test	\$1600
Cost for 580 pilots	\$0.9m
Aircraft cost per hour ³	\$800
Cost for an aircraft based test	\$1600

1: Information obtained from operators of simulators located in Australia 2: European requirements

3: Average costs obtained from a survey of affected aircraft operators

Recreational pilot licence

CASA proposes to introduce a Recreational Pilot Licence for pilots who only wish to fly for recreational purposes in small aircraft and who do not want to obtain a full private licence. The licence will enable the individual to operate a small aircraft (with a maximum weight of 1500kg) unsupervised after completing a flight test. The introduction of the recreational licence does not represent a change to the existing regulation as it simply formalises the permissions granted to a student pilot who has passed the current General Flying Progress test (GFPT) to conduct a flight in a small aircraft without the need for the flight to be

authorised by a flight instructor as required under the current regulations.

In addition, the recreational pilot option will allow recreational (or student) pilot licence holders who do not hold an aviation medical certificate to operate an aircraft with certain limitations. This is not a deviation from the current regulatory standards as CASA currently provides this regulatory approval through the issue of a general exemption.

Simplified category, class and type ratings

Under the current regulations pilots are required to obtain either a class or type endorsement to operate a specific aircraft. The proposed option will replace the current system of issuing aircraft class and type endorsements with the issuing of aircraft class and type ratings. Essentially this is changing the name of the regulatory approval from endorsement to class and will not change the requirements for obtaining the regulatory approval to operate specific aircraft, other than streamlining the requirements for smaller aircraft.

The class ratings will consolidate the number of endorsements and will enable pilots to operate a wider range of relatively simple aircraft with essentially similar handling and performance characteristics without requiring an additional endorsement.

Cruise relief

Cruise relief pilots generally operate on long duration flights during which the crew is required to have periods of rest. The cruise relief pilots operate the aircraft when the aircraft is flying above 20 000 feet accompanied by a fully qualified pilot. Cruise relief pilots do not undertake take-offs or landings. The current regulations do not recognise cruise relief pilots and they are trained and treated in the same way as co-pilots requiring them to complete training in tasks that they are not required to perform. The proposed option will introduce a Cruise Relief type rating that will entitle the pilot to operate the aircraft above Flight Level 200 (approximately 20 000ft above ground level). The current ongoing licensing requirements for cruise relief pilots will be largely maintained. Based on discussions with two affected airlines CASA estimates that there will be no cost impact from this change.

Elimination of co-pilot qualifications

Currently for multi-crew aircraft CASA issues endorsements for the pilot in command and the co-pilot. ICAO does not provide for co-pilot qualifications and few other countries issue them. Industry feedback to CASA is that modern practices require co-pilots to have similar operating skills to the pilot in command and businesses now deliver essentially similar training to all pilots, that is, most companies train their co-pilots to pilot in command standards now and should see no change as a result. However, industry feedback identified that the change will have an impact on helicopter co-pilots who are generally not trained to the same standard for instrument rated flying obtained through an instrument endorsement.

Helicopter co-pilot

The current co-pilot instrument endorsement for helicopter pilots will be replaced with a requirement that multi-crew helicopter pilots be trained to the same standard as the pilot in

command. This will increase the requirements for co-pilots with an additional 20 hours of training required. Based on averages over the last five years, the test will affect approximately 27 pilots per year who apply for a helicopter co-pilot licence. The additional training is estimated to cost \$20 000 per licence applicant (Table 2) and based on 27 pilots affected per year will cost the industry \$0.54m per year.

Table 2: Cost of additional helicopter co-pilot training

<i>Simulator based cost components</i>	
Multi-Crew simulator cost per hour ¹	\$1000
Hours per training and flight test	20
Cost per pilot ³	\$20 000

1: Information obtained from operators of simulators located in Australia

2: Average costs obtained from a survey of affected aircraft operators

The market for helicopter co-pilots is relatively small with approximately 27 of the 440 new helicopter pilot licences issued each year being for helicopter co-pilots. One of the main reasons that the market for helicopter co-pilots is small is because the multi-crew helicopters with instrument flying capability are expensive to purchase, in the order of \$5m compared to single pilot helicopters which could be purchased for \$0.2m.

The changes will not impact on the current helicopter co-pilots, but it may discourage potential helicopter co-pilots in the future from training due to the increased cost involved. However, this behavioural response is likely to be mitigated by the fact that the employers of pilots in Australia, including helicopter co-pilots, generally pay for the training.

Specialised activities ratings

Under current regulations the regulatory approval for higher risk flight activities, such as towing a glider, formation flying, spinning or aerobatics require a CASA authorisation. This means that the pilots and/or the businesses involved must come to CASA for approval and incur the associated administrative costs. In general, if a pilot obtains an authorisation whilst working for one business this will not be transferable to another business and the pilot must come to CASA for a new authorisation.

To simplify the current approval process for some specialised or higher risk flight activities the regulatory approval will occur through an endorsement issued by a flight instructor and attached to the pilot's licence. Whilst the underlying competencies for the endorsement will be the same as the current authorisation system, the affected pilots will benefit from not having to incur the administrative cost of seeking an authorisation from CASA. In addition, there will be no need to change the regulatory approval if the pilot transfers to a different business. The impact of this change will be to slightly reduce the administrative burden on pilots undertaking specialised activities.

Low-flying rating

The proposed option will require a pilot to obtain a low flying rating in order to undertake low

level flying (flight below 500 feet). The rating will require pilots to complete training in low flying or aerial mustering and undertake one flight review every two years to maintain the validity of the rating. On face value this may appear to be an additional requirement for these pilots, however, it is more accurately seen as a transfer of the regulatory approval from the operators of aircraft undertaking low flying to the pilots directly.

It is currently a condition of aircraft owners/operators permitted to undertake low flying to only use pilots who have completed the low flying or aerial mustering training. The current low level flying permissions are generally issued for a 2 year period and require a flight review in order for the permission to be renewed, which will be essentially maintained in the proposed option for a low flying rating.

Whilst one possible impact of this change could be to shift the cost of the flight review from the business to the pilot, this is considered unlikely. In general, aircraft operating businesses pay for the associated costs of maintaining the regulatory approvals required to undertake flying tasks for that business and so it is likely that the business employing pilots to undertake low level flying will continue to pay for the flight review.

Ongoing flight reviews for ratings

The proposed option will require a flight review every 2 years for all ratings, except an instrument rating which requires a review every year. Under current regulations commercial pilots already meet this requirement for all rating types and private pilots meet the requirement for the instrument rating. However, the option will require private pilots to undertake a flight review every 2 years if they hold a night VFR rating or a low level rating.

There are currently 3800 private pilots that hold a night VFR rating. Pilots holding multiple ratings can have those reviewed in a single flight, however, CASA assumes that the review of a night VFR rating will require a separate flight.

The flight review is likely to have an average duration of 1 hour and cost approximately \$500 (Table 4). With 3800 flight reviews required every two years this would have a total cost of \$1.9m every two years, or \$0.95m when annualised.

The impact of the increased cost of maintaining a rating may result in some pilots choosing not to renew the rating and lose the regulatory approval associated with that rating. This is likely to occur for private pilots who either never or rarely use the rating. It is difficult to estimate how many pilots are likely to choose to renew the rating because of the lack of information on the intention of pilots.

The cost estimates presented are based on the assumption that all active private pilots with a rating will choose to renew that rating. This is considered to be a reasonable cost assumption although it may overstate the cost of the flight review test requirement because the fact that some pilots may choose to not to renew a rating would indicate that they value the regulatory approval of the rating below the cost of the flight review test.

Table 4: Flight Review cost

<i>Aircraft based cost components</i>	
Aircraft cost per hour ¹	\$350
Instructor pilot cost per hour ¹	\$150
Hours per flight review	1
Total aircraft costs	\$500

1: Information obtained from a survey of affected aircraft operators

Specialist activity instructor ratings

It is proposed that the specialist activity instructor rating will require training in instructional technique, with authorisations attached to the rating for instructing in specific activities.

Obtaining the specialist activity instructor rating will require the applicant to undertake a theory of training/instruction course that is approximately 5 days in length. It is estimated that this part of the rating will cost \$3800 per applicant (Table 5). Based on averages over the last five years, the training requirement will affect approximately 100 pilots per year who apply for an approval to instruct for specialist activities. For 100 pilots per year and an average cost of \$3800, this would result in an industry cost per annum of \$0.38m.

Obtaining the authorisations to instruct for specific activities would also require the applicant to undertake training for that specific activity, for example if the applicant was applying to instruct for night VFR then the applicant would be required to undertake training on how to instruct for night VFR. Most of the training for these specialised activities would be undertaken in the aircraft with the person providing the training and the applicant.

The length of the training will vary according to the complexity of the activity that the applicant is applying to instruct. An average activity would involve approximately 5 days of specialised training, which is estimated to cost approximately \$12000 per applicant (Table 5). The total annual industry cost for the specialised rating training is estimated to cost \$1.2m based on an average cost per applicant of \$12000 and 100 applicants per year.

The new requirements will not impact on the existing 2600 instructors and there will be no immediate impact on the market for flight instructors or the services that they provide. In theory the impact of an increased cost of obtaining a specialist activity instructor rating could deter some new pilots from choosing to become an instructor in the future, however, this possible impact is not considered to be significant. The cost of the requirements, that are a one-off, are relatively small relative to the overall cost of obtaining an instructor rating and also small relative to likely income to be received from providing flight instruction services. A high proportion of the pilots instructing for specific activities already undertake at least some training for the specific activity without regulatory compulsion.

Table 5: Flight instructor costs

<i>Theory of training</i>	
5 days of classroom based training	\$800
Pilot time for 5 days ¹	\$3000
	\$3800
<i>Specialised activity training</i>	
Pilot time for 5 days ¹	\$3000
Instructor cost per 5 day period ¹	\$2000
Aircraft operating cost per hour ¹	\$350
Number of hours of aircraft operating time	20
Total aircraft cost	\$7000
Total cost for 5 days of training	\$12000

1: Average costs obtained from a survey of affected aircraft operators

Replace delegations for flight testing with ratings for flight examiners

The proposed option is to introduce a flight examiner rating as the mechanism for providing regulatory approval to pilots to conduct flight tests. This rating will replace the current delegation process. CASA currently delegates approximately 800 industry testing officers to conduct flight tests for the issue of pilot licences and ratings on its behalf. The delegations are administratively complex, requiring regular renewals and considerable administrative resources.

The flight examiner rating is intended to replace the delegation process with a rating which is simple to administer and which provides for training and competency standards for examiners. The requirements for the flight examiner rating will be the same as obtaining a CASA delegation.

The change will allow market forces to determine the number of flight testing officers rather than the present system under which CASA decides how many delegations will be issued. This change may improve competition by removing the potential restriction on the number of approved flight testing officers that are in the market place providing flight tests.

Flight Training Schools

ICAO requires businesses conducting flight training to be approved by the Authority of the contracting State. Currently Australia meets this requirement by requiring all flight training businesses to hold an Air Operator's Certificate. However, this can be an unnecessary cost for businesses that only conduct flight training. Under the proposed option businesses that only provide non-integrated and single pilot flight crew training will not be required to hold an Air Operator's Certificate, however, these businesses will be required to prepare an exposition outlining operational procedures and implement a safety management system to be approved by CASA as a training organisation.

Exposition

Currently flight crew training businesses are required to prepare an operators manual outlining operational procedures. The requirement for the preparation of an exposition will be largely met by the material included in the operator's current manual.

Simulator based businesses

There are currently 3 businesses that only operate flight simulators, and not aircraft, for the training of flight crew. These businesses will be required to prepare an exposition outlining their operational procedures and implement a Quality Management System. These requirements are not significantly different from the current requirements imposed through the approval of the business to obtain regulatory approval for simulators to be recognised for flight crew training.

Safety Management System

The training businesses upfront cost will include: understanding the requirements, development of a safety management dataset, a safety audit program and staff training material in human factors. Ongoing costs will involve: investigation of safety incidents, undertaking a safety audit, training staff in human factors and for large businesses, the cost of employing a safety manager and a safety analyst.

There are currently 210 training businesses that would be required to implement a safety management system. Box 1 outlines the cost estimates for implementing a SMS by size of business. The total hours required to comply with the safety management system requirements reported in Box 1 are based on the reported values from businesses operating regular public transport aircraft that implemented safety management systems from 2009.¹

Overall the expected upfront cost for business is estimated to be \$0.94m and have an ongoing cost of \$1.83m (Box 1). In addition to the business compliance cost, there will be an additional resource cost for CASA to assess the proposed safety management system of the business. It is estimated that CASA will require 10 hours on average to assess the SMS, deriving an upfront cost of \$0.6m when valued at an hourly rate of \$150 per hour.

¹ The number of staff per business is derived from administrative information collected from businesses during auditing processes. The labour costs are based on the average wage of Air and Marine Transport professionals being \$2 148.70 (ABS 2011) plus a 15% on cost. The cost of providing human factors training is based on the current price charged by the sole provider of such training. It is, however, possible for businesses to provide the training internally, but because of the difficulty observing the internal costs within a business CASA has based the human factors training cost on the observed price of the externally provided training.

Box 1: Safety Management System costs

Upfront costs

For small businesses employing six or less safety sensitive staff would require an understanding of the safety management system principles and human factor training and the development of safety dataset. CASA has developed a micro SMS tool to assist these businesses.

It is estimated that it would require 2 days for a small business manager to understand SMS principles and a further 2 days training in human factor training for all staff, and 1/2 day to setup an excel spreadsheet for the safety dataset. For small businesses, this would generate an upfront cost of \$2689, based on 4.5 days of time valued at the average salary of \$128 500 per year and \$1600 in human factor training from an external provider for the two days of training, deriving a cost of \$4289 per business. In aggregate for the 164 small businesses this would generate a total cost of \$0.7m.

For small/medium training businesses employing less than 20 people, the time cost will similar to sole traders with the addition of 2.5 days in time for developing staff training material and an investigation and audit program for the organisation. For individual small organisations this will cost 7 days valued at the average salary of \$128 500 per year, generating a cost of \$4183 per business, plus \$1600 in human factor training from an external provider. In aggregate for the 35 small/medium businesses this will cost a total of \$0.2m.

For medium businesses employing up to 50 the time cost will similar to small/medium business, however, the implementation of safety management system will require 2 days in time for developing staff training material and an investigation and audit program for the organisation. For medium businesses the time is estimated at 9 days valued at \$5378, plus \$1600 in human factor training from an external provider. In aggregate for these 5 businesses this will cost a total of \$0.034m.

Ongoing costs

For small businesses, there will be ongoing requirement to demonstrate an understanding the principles of safety management systems and human factors, at a cost of 1 day per year and 1 day to record any safety incident in the database and comply with a safety audit.

The ongoing cost for the SMS will be 2 days per year valued at a salary of \$128 500 that is \$1195 per small business, plus \$800 per year in human factors training, resulting in a total ongoing cost of \$1995. With 164 small businesses this is will generate an annual cost of \$0.46m.

For small/medium organisations the ongoing costs will be more significant, there will be more safety incidents to report, which will need to be investigated, ongoing risk assessments will be required for assessment of safety risks, developing means of reducing risks and training staff in safety. It is estimated that this will be the equivalent of 20% of the full-time workload for a person nominated as a safety manager within the organisation and when valued at the salary of \$128 500, this will cost small/medium businesses approximately \$25 700 each year. The human factors training is estimated to cost \$800 per employee and assuming 5 employees per business this will cost \$4000 per year resulting in a total ongoing cost of \$29 700 per business. When aggregated across the 35 small/medium businesses this will generate an ongoing cost of \$1.04m.

For training businesses employing up to 50 will be required to perform the same ongoing tasks of a medium sized business, but the additional employees will generate more safety incidents and risks to be assessed and staff to be trained. It is estimated that this will require 40% of the full time workload of one person, valued at \$51 400 for each business. The human factors training is estimated to cost \$800 per employee and assuming 20 employees per business this will cost \$16000 per year resulting in a total ongoing cost of \$67 400 per business When aggregated across these 5 businesses this will generate an ongoing cost of \$0.34m.

Overall Impact

Flight crew

The majority of the existing 34000 pilots will be unaffected by the proposed options and will retain their existing privileges and incur no cost. In addition, most new private and commercial pilots will be unaffected. For the limited number of pilots that will be required to meet new standards these are relatively minor changes.

Businesses

The existing flight crew training businesses will be required to meet new standards, however, again whilst these represent a deviation from existing standards the changes are relatively minor, which is supported by the feedback that CASA obtained from the consultation process.

General public

The proposed regulations, to the extent that they reduce the risk of an aircraft accident, will have a benefit to passengers and members of the public on the ground that may be injured or killed as the result of an aircraft accident. Although it is not possible to provide a quantitative estimate of the reduction in the probability of an accident from introducing the options, it is possible to put the safety issue for passengers in perspective in terms of the numbers of passengers potentially affected. There were 54 million passengers carried by domestic airlines for the 2010/11 year (p. 7, BITRE 2012).

Overall Costs

In developing the proposals, CASA has been careful to offset any increased requirements with reductions in other requirements, particularly administrative requirements which have a less direct impact on safety. The total increased costs are estimated to be approximately \$8m per year, or \$56.3m when discounted over a 10 year period (Table 6).

Table 6: Total costs (\$m)

	Y1 upfront	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
ATPL test	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20	\$3.20
Helicopter co-pilot	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54	\$0.54
Reviews for ratings	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95	\$0.95
Instructor training	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54	\$1.54
Training Schools	\$1.54	\$1.83	\$1.83	\$1.83	\$1.83	\$1.83	\$1.83	\$1.83	\$1.83	\$1.83
Total costs	\$7.77	\$8.06	\$8.06	\$8.06	\$8.06	\$8.06	\$8.06	\$8.06	\$8.06	\$8.06
Discounted total over 10years	\$56.34									

Offsetting the increased cost CASA has reduced costs, particularly in regard to the

following:

- The replacement of flight testing delegations with examiner ratings will reduce the administrative burden on approximately 800 flight testing officers who will no longer be required to incur the administrative cost of maintaining a CASA delegation.
- The introduction of a recreational pilot licence and proposed relaxation of associated medical certification, which will allow certain recreational pilots to avoid the cost of an aviation medical certificate to fly recreationally. There are approximately 3000 pilots that could fall within this category although it is likely that only a subset would choose to reduce their privileges to avoid a medical certificate.
- Reduced aeronautical experience requirements for a commercial helicopter licence, with the number of hours being reduced from the current 105 hours to 100 hours. There are approximately 280 pilots each year that are issued with a commercial helicopter licence.

Benefits

The focus of the changes to the flight crew licensing requirements is safety, however, because of the difficulty predicting accurately the quantitative effect on aviation safety, CASA has only been able to offer a qualitative assessment of the benefits:

Human factors impact

An important rationale for the options to refine the existing flight crew licensing regulations is the incorporation of requirements to address the accident risk that can be attributed to human factors. A likely impact of the proposed changes is that there will be increased exposure of pilots to human factors in their training. Instructors employed by flight training schools will be required to undertake annual human factors training that should improve their ability to teach pilots the human factors component of their training.

The introduction of multi-crew co-operation training for pilots engaged in multi-crew operations is in recognition of the developments in aircraft technology and the changes in the roles of pilots employed in those operations. The flight test for the ATPL also provides an opportunity for CASA to assess the effectiveness of that training.

Within the training business itself the requirement for the organisation to have a safety management system, which is designed to address the risk of human error is likely to reduce the number of accidents/incidents during training flights. The ATSB reports that over the period 2002 to 2011 there were 13 accidents on training flights resulting in 18 deaths (p. 49, ATSB 2012).

Other safety benefits

- Introducing increased requirements to ensure pilot competency is more likely to ensure that only competent pilots will be permitted to operate an aircraft. An indication of the size of this benefit can be seen in the failure rate of current

competency checks and other types of pilot skills/knowledge testing. The failure rate is approximately 15%, indicating that 15% of pilots benefit from undertaking the competency testing to identify potential safety related deficiencies that can be rectified.

- Improving the training requirements for co-pilots will increase the likelihood that those pilots will be able to operate the aircraft safely should that become necessary due to a failure of the pilot in command to operate the aircraft.

Alignment with international standards

In addition to the safety benefits an important benefit of the changes is an increased alignment with international regulatory standards. International alignment is important to ensure that Australian flight crew licences are recognised and accepted internationally and to maintain Australia's international competitiveness in the international market for flight crew training.

International flights require countries to accept the pilot qualifications and licences of other countries. By aligning closely with international standards Australia will increase the probability of other countries accepting the qualifications and licences of Australian pilots and therefore the international flights that these pilots undertake.

Consistency with international standards is also important for attracting international students to train for a flight crew licence in Australia. An important reason why students for a flight crew licence would select Australia is because the Australian qualifications and licences are highly regarded internationally. As an indication of the size of this market, each year approximately 6000 international students are trained in Australia and issued with a flight crew licence.

Consultation

The proposed flight crew licensing changes have been subject to extensive industry/public consultation over a number of years including:

- Publication of a Discussion Paper
- Publication of a Notice of Proposed Rule Making
- Industry briefings
- Draft regulations released for public and industry comment
- Inclusion of affected individuals, organisations and businesses on joint CASA industry working groups

CASA released the proposed regulations for Parts 61, 64, 141 and 142 that contained the proposed options covered in this Regulation Impact Statement for final public consultation in late 2011 and early 2012. Overall the responses to that consultation indicated that the affected businesses and individuals were neutral to the proposed changes, with no significant objections.

A number of stakeholders objected to the “strict liability” drafting style of the regulations required for modern legislation. The drafting style is an Australian Government requirement and does not alter the regulatory requirements on businesses or individuals. Other concerns related to the wording of certain provisions, but overall the proposed regulations were generally supported. The organisation representing the pilots and aircraft owners within general aviation stated that:

In general, the proposed Part 61 is based on sound concepts, consistent with safety and comparable practices in other countries. For the largest part, [the organisation] supports the proposal.

Large businesses operating aircraft, including the major airlines, are generally supportive of the changes, however there are some specific criticisms. As an example, one airline provided the following general comments on the draft regulations:

- The Part is difficult to read and interpret with considerable cross referencing required
- A number of strict liability offences apply to individuals who may be conducting training or examination activities within the confines of administrative business processes for which those individuals have little or no control
- The manual of standards would need to be reviewed to provide further detailed comment.

Flight training businesses are generally supportive of the changes with a recognition that Australia needs to maintain its good reputation for flight crew training and licensing, particularly for prospective international licensing applicants. One affected flight crew training business stated:

We see Part 61 as a reasonable articulation of a licensing system and associated administrative mechanisms which has the potential to relieve administrative burdens and costs on operators.

...

We are largely supportive of the proposed CASR 61, and are pleased to be able to provide our own assessment of some of its stipulations which may have unintended consequences for operators such as ourselves. These are by and large few in number, and we hope that CASA may take these comments on board in the finalisation of the Part.

A club representing the aerobatic sector stated:

The [club] supports the proposed changes as presented, with only some tweaking of the sections relating to spinning and aerobatics to reflect world and current domestic practice and emphasise the greater risk associated with aerobatic flight at extremely low altitude.

In relation to the draft regulations for Ground Authorisations (Part 64) published during 2012:

An individual from General Aviation commented:

This draft is very good and meets the needs of the general aviation industry particularly in the immediate taxiing approval process rather than the current system which requires CASA processing and associated costs.

An airline business stated:

In general terms [the business] is supportive of the direction CASA has taken with regard to Ground Authorisation.

Implementation and Review

In accordance with the CASA Regulatory Reform plan, the proposed new CASR Part 61 is expected to be made coincidentally with CASR Part 64, Part 141 and Part 142 by the Governor-General in late 2012 with commencement one year later.

An implementation/transition plan for CASR Part 61 will commence during 2012/13. CASA already has an implementation team in place developing an implementation plan for the new flight crew licensing regulations.

The implementation/transition phase will provide for Australia-wide education and training programmes to assist industry and CASA staff in the application of the new rules.

Any new requirements will only apply to new applicants with existing pilots maintaining their existing privileges.

During the transitional period (between the regulation making date and commencement date), current rules will apply unless otherwise superseded by other relevant CASR Parts. Holders of flight crew licences will be required to comply with the CASR Parts at the time of commencement of those regulations. Transitional arrangements will provide that flight crew authorised to undertake activities under the current regulations will automatically be authorised to conduct those same activities under the new CASR Part 61. However flight crew granted instructor ratings and examiner ratings under the transitional arrangements will have to complete the appropriate Certificate IV requirements for their next instructor or examiner rating flight review (i.e. within two years of the previous renewal).

CASA's regulatory development process provides for the evaluation of the implementation process and, following the commencement of the regulations, a review of the implementation to assist in fine-tuning the new regulations.

The monitoring and review of the new regulations will be conducted on an ongoing basis during the implementation/transition phase. Thereafter, following the commencement of the regulations, monitoring and review will be conducted on an as required basis and (within 5 years) as required by the Government.

Conclusion

In developing the proposals CASA is not introducing a new regulatory regime, but is simply refining the existing requirements. The options, while making some changes to existing requirements, do not introduce any substantial new imposts on the aviation industry and in fact, will alleviate and simplify a significant number of current requirements.

The purpose of the proposals is to provide clear and consistent regulations for licensing flight crew without significantly increasing industry costs, but they do incorporate proposals for systemic changes designed to improve aviation safety.

Whilst there is a strong case for introducing better flight crew training requirements to improve safety, CASA accepts that the cost of flight training is already high. To contain costs there needs to be a reduction in requirements not directly contributing to safety to allow for additional safety targeted measures. In addition, Australia benefits from aligning flight crew licensing requirements closely with international standards.

Wherever possible CASA has sought to reduce administrative requirements in the flight crew licensing system that do not directly contribute to safety, so that other proposals addressing safety issues do not result in a significant cost to industry. Although some sectors of industry will experience modest increases, the overall result should tend to reduce rather than increase costs.

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