



Australian Government
Civil Aviation Safety Authority

DISCUSSION PAPER



Ageing Aircraft Management Plan

To increase awareness and education in relation to
ageing aircraft issues

This DP will be of interest to
Aircraft owners and operators.

Issued as part of the process of public consultation by
CASA's Standards Development Branch

Document DP 1205CS – September 2012

PROJECT NUMBER: MS 12/29

Foreword

Context of this Discussion Paper

The average age of Australia's piston engine aircraft fleet is approximately 40 years and rising. Does this high average chronological age impact the safety of these aircraft?

The Civil Aviation Safety Authority (CASA) invites input from the aviation community on the continued safe operation of ageing aircraft in Australia.

This Discussion Paper (DP) was prepared to propose a number of options on to how Australia's ageing aircraft fleet might be better managed, so they can continue to operate safely.

Readers are strongly encouraged to refer to the CASA ageing aircraft educational links listed below prior to reading and responding to this DP:

- The CASA Ageing Aircraft Awareness E-Learning Course for Registered Operators is available on the CASA website. If you are a first time user, you will be required to enter your details onto the CASA Learning Academy site prior to undertaking the on-line course. The E-Learning course is available at: [Initial Login Ageing Aircraft Awareness E-Learning Course](#).
- Once registered, subsequent E-Learning access will be from: [Ageing Aircraft Awareness E-Learning Course](#).
- The CASA AAMP – Stage 2 Industry Feedback and Awareness Presentations available on the CASA website at: <http://www.casa.gov.au/wcmswr/assets/main/lib100074/stage2.pdf>

Please note that this DP relates to options with regard to the future management of Australia's ageing aircraft fleet in general. This DP does not address the engine aspects of the Australian fleet. These aspects will be covered independently via a separate DP.

Background

The Government White Paper entitled "Flight Path to the Future" released in December 2009, required CASA to increase its focus on ageing aircraft. As a result, CASA initiated the Ageing Aircraft Management Plan (AAMP) which is addressing the ageing aircraft issue in the following Stages:

- **Stage 1:** Articulate the scope of the ageing aircraft issue in Australia and make recommendations for the continued safe operation of ageing aircraft;
- **Stage 1+:** Industry Feedback & Ageing Aircraft Awareness campaign;
- **Stage 2:** Implementation of Stage 1 recommendations and key strategies; and
- **Stage 3:** Annual review of the effectiveness of Stage 2 initiatives once successfully implemented.

CASA is currently implementing Stage 2 of the AAMP.

The conduct of the AAMP and the content of this DP is based on objective engineering data and analysis as CASA has adopted a scientific approach to addressing the ageing aircraft issue. Suggestions should be supported with objective engineering data and analysis.

How you can help us

The Civil Aviation Safety Authority (CASA) is responsible under the *Civil Aviation Act 1988*, amongst other functions, for developing and promulgating appropriate, clear and concise aviation safety standards. In the performance of this function and the exercise of its powers, CASA must, where appropriate, consult with government, commercial, industrial, consumer and other relevant bodies and organisations.

Civil Aviation Act 1988 Subsection 9(1)(c) and Section 16

This Discussion Paper (DP) contains options which may be pursued in a future regulatory change proposal eg. Notice of Proposed Rule Making (NPRM) or Notice of Proposed Change (NPC). These documents all form part of the consultation process.

No action will be taken until all responses and submissions have been considered. To ensure clear and relevant safety standards, we need the benefit of your knowledge as an aviator, aviation consumer and/or provider of related products and services **by completing the DP Response Form and returning it to CASA by 7 November 2012.**

I would like to thank you in advance for taking time to consider and respond to this DP.



Peter Boyd
Executive Manager
Standards Division

10 September 2012

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★ YOU CAN RESPOND ONLINE OR BY FAX, POST OR E-MAIL ★

An online response form is offered as an alternative to the printed form in this DP and is the preferred method of submitting comments to CASA. If you are connected to the Internet, access the online form by clicking on this website address: casa.gov.au/newrules/ors, or if you are working from a paper copy of this document, type that address into your web browser.

Acronyms

AAMP	Ageing Aircraft Management Plan
AP	Authorised Person
CAR	Civil Air Regulation (of the previous US Civil Aeronautics Administration)
CAR	Civil Aviation Regulations 1988
CASR	Civil Aviation Safety Regulations 1998
CASA	Civil Aviation Safety Authority
DP	Discussion Paper
FAR	Federal Aviation Regulation (US FAA regulation)
GA	General Aviation
HCRPT	High Capacity Regular Public Transport
ICA	Instructions for Continued Airworthiness
LAME	Licensed Aircraft Maintenance Engineer
MoS	Margin of Safety
NFRM	Notice of Final Rule Making
NPRM	Notice of Proposed Rule Making
NPC	Notice of Proposed Change
SID	Supplemental Inspection Document
SDR	Service Difficulty Report
SoM	System of maintenance
STC	Supplemental Type Certificate

Discussion

1. Objective

1.1 The objectives of this DP are to:

- Outline the broad findings of AAMP – Stage 1 Final Report in relation to ageing aircraft which confirms that Australia does have an ageing aircraft problem, that this problem is primarily associated with General Aviation (GA), and that the impact of the ageing aircraft problem will not likely diminish in the foreseeable future.
- Outline initiatives to further assist industry in the continued safe operation and management of ageing aircraft which includes:
 - Encouraging Registered Operators (owners) to “take a closer look” at their ageing aircraft to determine if the current maintenance practices being applied to their aircraft are sufficient to ensure their aircraft is, and remains airworthy.
 - Facilitating the ageing aircraft E-Learning course on CASA web-site targeted at Registered Operators, to assist with their knowledge in ensuring the continued safe operation of their aircraft.
 - Trialling the use of the prototype Matrix Tool. If fully developed, this Matrix Tool may assist Registered Operators to determine the extent to which their individual aircraft may be susceptible to ageing issues.
 - Further encouraging participation in aircraft Type Clubs where members are able to collectively share their knowledge and experience and that way further benefit in the support and sustainment of their ageing aircraft. Such an initiative would also allow for the amortisation of any costs associated with the development or tailoring Systems of Maintenance (SoM), or other engineering solutions to best support their particular aircraft type;
 - The review of the existing CASA Maintenance Schedule 5 (on its own), for its appropriateness as part of the continued maintenance support of Australia’s ageing aircraft fleet.

Note: A separate DP will be issued by CASA to discuss the reform of aircraft maintenance programs, including CASA Maintenance Schedule 5. This paper will be issued as part of the reform of the maintenance regulations for all aircraft used in non-RPT operations including current Charter, Aerial Work and Private operations.

2. The Consultation Process

2.1 Publication of this DP constitutes the first stage of public/industry consultation on proposals related to the continued safe operation of Australia’s ageing aircraft fleet.

2.2 CASA will consider comments made in response to this DP prior to any specific change proposals in any subsequent regulatory change or advisory material.

2.3 Once responses to this DP have been received, they will be consolidated and considered by CASA. The outcomes from the evaluation of comments on the DP may then lead to development of a Notice of Proposed Rule Making (NPRM) or Notice of Proposed Change (NPC). If an NPRM or NPC is developed and CASA decides to make a rule change, the responses to the NPRM or NPC will be published with the proposed Notice of Final Rule Making (NFRM) or NFC concurrent with the making of the final rule.

What CASA does with your comments?

2.4 CASA registers each comment and submission received but will not individually acknowledge a response unless specifically requested. However, the name of every contributor will be published in a consolidated summary of responses in the subsequent NPRM (if issued) unless a respondent specifically asks CASA not to.

3. Issues for Consideration

3.1 Background

Broad findings of AAMP – Stage 1

Definition of an ageing aircraft

3.1.1 No universal definition exists for defining an ageing aircraft. As a result, the CASA definition of an ageing aircraft has been developed as follows:

*All aircraft could be considered to be ageing aircraft from the day of manufacture. However, the **rate** at which an individual aircraft ages is dependent on a range of factors that are unique to that particular aircraft. The extent of ageing is dependent on how the subject aircraft have been individually operated, maintained and stored during their respective lives.*

3.1.2 Many factors influence how an aircraft ages. These factors can be broken down into three main groupings: pre-manufacture, manufacture and post-manufacture.

Pre-manufacture

3.1.3 The ageing process has its origins well before the aircraft is actually built. Impacts include the original design assumptions made for the operation and maintenance of that aircraft and whether or not these assumptions are followed or complied with during the life of the aircraft. Many of the aircraft on the Australian register were designed with a 20 year notional life, while the average age of these same aircraft is now 40 years and rising.

3.1.4 Another major influence is the original certification basis to which the aircraft was built. Earlier certification bases reflect the collective industry knowledge at that time and may have had little or no consideration to our modern understanding of factors including fatigue, corrosion, systems deterioration, materials selection and inspectability.

3.1.5 More modern aircraft designs, built to later certification standards and amendment statuses such as Federal Aviation Regulation (FAR) 23 and FAR 25 etc., have a much higher likelihood of encompassing the best possible contemporary engineering practices in relation to minimising the negative design impacts on ageing.

Manufacture

3.1.6 The quality and the characteristics of the materials chosen, as well as the physical assembly of the aircraft on the production line, will also significantly impact the way an aircraft will age. Any mistakes or oversights in the quality control process made as part of the production process will compound and result in the original designer's assumptions no longer being valid and may have a negative impact on the ageing process.

Post-manufacture

3.1.7 This has by far the greatest impact on the ageing process of an aircraft. Variations to the assumptions the designers made for how the aircraft is likely to be operated, maintained and stored are critical to managing the ageing process safely. In many cases, aircraft continue to be operated differently to what the designers originally envisaged. This is especially reflected in the aircraft being operated many decades beyond the original notional life of the aircraft, whilst being maintained to a maintenance schedule that was only ever designed to support that aircraft for the original notional life. In addition, there may be an accumulation of modifications, repairs and damage over the years, the combination and effects of which were not considered as part of the original design of the aircraft.

3.1.8 In many cases the inherent additional Margins of Safety (MoS) factors built into the original design calculations, together with either good maintenance practices and/or good fortune have minimised catastrophic outcomes. However, the passage of time continues to erode those inherent MoS. Therefore, continuing to operate in the current manner may not guarantee the same positive outcomes achieved to date.

Maintenance

3.1.9 No machine can continue operating indefinitely without updating the way it is maintained to take into account ageing issues. The CASA Service Difficulty Reporting (SDR) data base attests to many occurrences where catastrophic outcomes were alleviated only by individual Licenced Aircraft Maintenance Engineer (LAME) skill or good fortune i.e. taking a close look by undertaking further inspections where the maintenance schedule applicable to that aircraft does not require such actions to take place.

3.1.10 In Australia, for GA aircraft in general, there is no single common standard of maintenance that is mandated. Registered Operators have the choice of nominating one of the following options for the maintenance of their aircraft:

- Manufacturer's Maintenance Schedule (Regulation 42A of CAR 1988);
- CASA Maintenance Schedule 5 (Regulation 42B of CAR 1988); or
- Approved System of Maintenance (SoM) (Regulation 42C of CAR 1988).

3.1.11 The nomination of which maintenance program to use is key for the continued safe operation of ageing aircraft. As an aircraft ages up to and beyond its original design assumptions, the nominated maintenance program needs to be modified to take into account ageing issues, particularly in regard to inspections of key areas or components not usually accessed. The adaptation and/or augmenting of existing maintenance programs can be undertaken by any person (i.e. Registered Operator or otherwise), or group of people (i.e. Type Clubs). Any such modified maintenance program can then be formally approved for use by either CASA or an appropriately authorised person.

3.1.12 CASA and Authorised Persons (AP) are obliged to take into account all relevant maintenance data or information pertinent to a particular aircraft type, including manufacturer's data, Airworthiness Directives, Service Bulletins etc, when approving a SoM. In this regard, it is important to ensure that a SoM reflects the aircraft's actual geographical, operational and maintenance environment. Co-operation between type owners to share their experiences would likely assist with the development of SoMs that clearly describe not only what but how maintenance should be performed, thus providing for the best possible outcome.

3.1.13 Similar co-operative efforts could also be directed towards the engagement of suitable CASR 21M APs to develop specific Supplemental Type Certificates (STC), Technical Substitution Lists or modifications for a particular aircraft type as may be appropriate. The development of STCs or modifications may be relevant in instances where support for an original engine, or other component or system may no longer be available.

3.1.14 The development of a Technical Substitution List is pertinent for consumable items such as circuit breakers, relays, switches, brake pads etc. where the original approved parts are no longer manufactured or held in stock. The availability of such lists, with approved substitution items, would encourage Registered Operators to replace these items on their aircraft (which may still be original fit items of questionable serviceability) which may otherwise never be replaced, due to the significant costs involved to do so, on an individual basis.

3.1.15 The Manufacturer's Schedule may provide appropriate ageing aircraft maintenance activities, provided that manufacturer continues to update their Instructions for Continued Airworthiness (ICA) with additional ageing aircraft management activities, such as the Cessna Structural Inspection Documents (SIDs). On the other hand, some Manufacturer's Schedules are documents which are frozen in time from when the aircraft was first actually produced. In some cases these schedules have not been legally required to be updated to reflect the aircraft ageing well beyond its original design life assumptions, even though these assumptions may have been reached many decades ago.

3.1.16 CASA Maintenance Schedule 5 was originally conceived as a minimum schedule of maintenance activities to be undertaken on a very limited range of relatively simple, "orphan" aircraft that either no longer had any form of manufacturer maintenance support, or where that manufacturer's support was deemed to be inadequate by CASA. These aircraft are identified in Civil Aviation Order 100.5 (General requirements in respect of maintenance of Australian aircraft) 2011 (as amended).

3.1.17 The proliferation of CASA Maintenance Schedule 5 and its effect more broadly across the Australian industry has not necessarily been properly justified on an engineering basis and is another issue to consider in terms of ensuring appropriate maintenance standards.

3.1.18 CASA Maintenance Schedule 5 was not originally intended to address ageing aircraft related issues. Schedule 5 only prescribes what maintenance activities should be done, but not “how” these activities should be undertaken. Because of this, CASA Maintenance Schedule 5 leaves much open to the interpretation of the individual Registered Operator and/or LAME in determining how items detailed on the schedule are complied with and to what extent further inspection, investigation or disassembly should occur. The literal application of this schedule on its own was not intended to replace the manufacturer’s ICA, where available.

Main concerns for Class B aircraft

3.1.19 The average age of Australia’s High Capacity Regular Public Transport (HCRPT) fleet is significantly less (well under 20 years) than that of the Australia’s piston engine GA fleet (40 years average). In addition, Australia’s HCRPT aircraft fleet tends to be certificated to the higher FAR 25 certification standard, a significantly more comprehensive certification standard than that applicable to the majority of Australia’s GA fleet. In addition, the ICAs that have been developed for these aircraft are likewise more comprehensive and already encompass techniques for dealing with issues such as ageing.

3.1.20 GA aircraft tend to be designed to either Civil Air Regulation (CAR) 3, which was the applicable design standard in the United States after the Second World War and prior to 1965 and FAR 23 which became applicable to aircraft certificated post 1965, but did not comprehensively take into account issues such as fatigue until later amendment statuses issued in the late 1980s.

3.1.21 As a result, Australia’s HCRPT aircraft have consideration of fatigue aspects built into their designs from manufacture. In addition, there is the obligation for Registered Operators of these aircraft to apply comprehensive Manufacturer’s Maintenance Schedules that fully address ageing issues as part of their FAR 25 certification basis.

3.1.22 HCRPT operators generally have higher manpower resources available to them as part of their on-going maintenance than is the case with Australia’s GA aircraft.

3.1.23 For the reasons stated above, while Australia’s HCRPT aircraft are not immune from ageing issues, CASA is primarily concerned with the state of the ageing GA aircraft fleet at this stage.

Minimal availability of ageing aircraft data

3.1.24 Another significant difference between HCRPT fleets and that of Australia’s GA fleet is the availability of data necessary to accurately determine the extent to which ageing issues affect these fleets and individual aircraft. A major aircraft operator will usually have a comprehensive understanding of the status of each individual aircraft in its fleet at any particular time, for example:

- Chronological age of aircraft and components;
- Reliability data;
- Condition monitoring;
- Flying hours;
- Cycles;
- Types of operations;

- Magnitude and occurrence rate of Flight Manual exceedances;
- Modification & repair configuration management;
- An appropriate Manufacturer's Maintenance Program;
- Where the aircraft is located of an evening;
- Degree of paint or protective coating degradation;
- Cleaning regime; and
- Standard of workmanship.

3.1.25 Such an operator will be able to closely manage these aspects in such a way as to maximise the airworthiness, and therefore the reliability and availability of the aircraft.

3.1.26 The previously-mentioned factors that collectively impact the rate at which an individual aircraft ages is required to be managed by the Registered Operator (with the assistance of their contracted LAME), for the majority of privately owned GA aircraft in Australia. It is not possible for CASA to oversight the management of the ageing issue for these aircraft individually.

3.1.27 Therefore, CASA is trialling the use of the prototype Matrix Tool to assist Registered Operators to estimate the extent to which an individual aircraft may be susceptible to ageing issues. By inputting into the Tool the operational, maintenance and storage details pertinent to their individual aircraft, the Registered Operator will receive an indication of how likely it is that their aircraft may be affected by the ageing process.

3.1.28 The prototype Matrix Tool is intended as an educational guide only. At this stage, the prototype version can provide only generalised feedback to the user, based on the accuracy and necessary coarseness of the data inputs. Users of the prototype Matrix Tool should not rely on the current result for their aircraft to make significant maintenance decisions.

3.1.29 Similarly, there are limitations in the prototype Matrix Tool's granularity with respect to how an aircraft is operated, maintained or stored now, as opposed to how this may have been undertaken during previous significant periods of that aircraft's life. For example, an aircraft may have recently been hangared, whereas for the majority of the aircraft's life it may have been stored predominantly on the tarmac. Designing an accurate ageing representation for such a scenario will require further development. Only the functionality and user-friendliness of the prototype Matrix Tool will be tested during the duration of this DP, and may extend into the early part of 2013, to assist in the possible further development of a production version.

3.1.30 The prototype Matrix Tool can be accessed via the following link: www.yourplane.com.au and by inputting both the exact Aircraft Model Number as well as the Aircraft Serial Number and using the following password: matrix

3.1.31 It is critical that data be input in the exact format as it appears on the CASA database for a given aircraft registration (i.e. case sensitivity, spaces, etc.), which can be accessed at: http://casa-query.funnelback.com/search/search.cgi?collection=casa_aircraft_register

3.1.32 Further information and details of Australian registered aircraft and associated serial numbers is also available on the internet using such sites as: <http://www.regosearch.com/>

Note 1: *CASA will not be collecting or retaining aircraft information entered into this prototype. All information is deleted as you leave the site.*

Note 2: *Baseline data about aircraft used on the prototype Matrix Tool was taken from the Australian register two years ago. Therefore, aircraft entering the register less than two years ago will not be able to use the trial of this prototype.*

Minimal industry awareness of the science of ageing

3.1.33 The AAMP – Stage 1 Final Report identified, with few exceptions, a generally low level of understanding across the Australian industry of the science of ageing. There is minimal training and/or information, relating to ageing aircraft issues, available that is specifically targeted at Registered Operators or LAMEs. The National AAMP – Stage 1+ Industry Feedback & Ageing Aircraft Awareness Campaign, <http://www.casa.gov.au/wcmswr/assets/main/lib100074/stage2.pdf> as well as the release of the CASA booklet “Take a closer look” forwarded to all Registered Operators, are initial steps CASA has undertaken to attempt to address this issue.

3.1.34 Knowledge of the effects and consequences of ageing on an aircraft is key to the success of any CASA ageing aircraft initiative, particularly in relation to Registered Operators who are ultimately responsible for airworthiness of their aircraft. It is vital that Registered Operators understand the regulatory, economic and safety implications of the airworthiness decisions they are required to undertake on behalf of their aircraft. If you are a first time user, you will be required to enter your details on the CASA Learning Academy site prior to undertaking the on-line course. The E-Learning course is available at: [Initial Login Ageing Aircraft Awareness E-Learning Course](#). Once registered, subsequent access to the E-Learning course is via the following link: [Ageing Aircraft Awareness E-Learning Course](#).

3.1.35 There is no justifiable “Silver Bullet” or “One size fits all” approach to the ageing aircraft problem. Due to the variables mentioned above, each aircraft ages in a unique manner and at a unique rate. As a result, it is possible to have both an outstanding, as well as a very poor, example of two aircraft of the same type, both possibly built on the same day. Pilots and passengers are not always able to tell the difference and rely on the integrity of the Registered Operator and maintainer to ensure the aircraft they are flying in is indeed airworthy.

3.1.36 The solution to the ageing aircraft problem is dependent on the Registered Operator taking a closer look at the way he or she manages the airworthiness of their aircraft. In many cases, the ageing aspects of the aircraft may already be adequately addressed by the way the aircraft is operated, maintained and stored. In other cases, there may be some relatively simple and straight forward changes required by the Registered Operator to assure themselves of the continued airworthiness of their ageing aircraft.

3.1.37 However, some aircraft may require considerable attention to provide the Registered Operator with adequate confidence that they are complying with their legal obligations. Every aircraft will be at a different stage in the ageing process. All Registered Operators are encouraged to “take a closer look” to determine the ageing status of their aircraft for themselves and take action accordingly.

3.2 Considerations for selection of an appropriate standard

3.2.1 CASA is obliged to take action where any deficiencies have been found to exist in the current management of ageing aircraft. CASA is required to raise the awareness of ageing issues with Registered Operators and the industry in general, as well as legislate in the public interest, where necessary, so that ageing aircraft can continue to operate safely.

3.3 Options

3.3.1 This DP presents for comment five (5) principal options with several variations:

Option 1 – Do nothing

3.3.2 No further research, oversight or management of the ageing aircraft fleet. This would produce minimal further opportunity to identify and address ageing related catastrophic events before they occur.

Option 2 – Matrix Tool

3.3.3 Further develop the prototype Matrix Tool into a production version, permanently available on the CASA website, to enable Registered Operators to more accurately establish the likelihood that their aircraft may be suffering from the negative impacts of ageing.

Option 3 – E-Learning

3.3.4 Further promote and encourage the use of the recently-developed Ageing Aircraft Awareness E-Learning course to improve Registered Operator's knowledge. This would better equip Registered Operators to manage their aircraft in relation to ageing aircraft issues.

Option 4 - Type Clubs

3.3.5 Further encourage the participation or formation of Type Clubs where members are able to collectively share their knowledge and experience in the support of their ageing aircraft. This might include the ability to amortise any costs associated with the development of approved SoMs, or CASR Part 21M developed STCs, repairs or technical substitution lists etc. to best support their ageing aircraft type.

Option 5 - Professional Development

3.3.6 Further develop and deliver professional development training to LAMEs and APs to ensure enhanced SoM outcomes that genuinely address all aspects of the ageing process in the Australian operating and maintenance environment.

3.4 Benefits and impacts

3.4.1 Options 2 to 5, inclusive, acknowledge the science behind the ageing process and endeavour to use education to raise the awareness of this ageing issue in order to minimise the negative impacts on Australia's aircraft fleet. These options also seek to harness industry knowledge and experience to develop cost-effective, optimised safety outcomes through the sharing of information by affected parties.

Registered Operator/Owner

3.4.2 The voluntary uptake of Options 2, 3 and 4 by Registered Operators would maximise the awareness of their responsibilities as well as the consequences of not addressing ageing issues associated with their aircraft in a proactive manner. An informed Registered Operator is best able to understand and manage the risks associated with the continued operation of their ageing aircraft, as well as understand how any such risks can be minimised.

Maintenance Organisations and LAMEs

3.4.3 The voluntary uptake of Options 2, 3 and 4 by Registered Operators would have an effect on the level of activity of Maintenance Organisations and LAMEs. By definition, “take a closer look” implies undertaking more maintenance (primarily inspection) activities to assure the continued airworthiness of the Australian fleet, than is currently the case. However, these additional maintenance activities would be limited to those aspects of highest concern as a result of the awareness generated from the ageing aircraft education initiatives.

Authorised Persons

3.4.4 The increased awareness of ageing issues, and the development of best practice strategies by industry to address them, will need to be considered in light of the voluntary uptake of Options 2, 3 and 4 which would have an effect on the current level of activity of CASA and industry APs.

Public

3.4.5 The voluntary uptake of Options 2, 3 and 4 would increase the current levels of inspection and rectification activity of Australia’s ageing aircraft fleet in those areas that have the highest requirement for action as a result of the ageing aircraft education initiatives. This would result in higher levels of safety outcomes industry wide.

4. Conclusion

4.1 The average age of Australia’s piston engine aircraft fleet is 40 years and rising, with this situation likely to continue for the foreseeable future. The majority of these aircraft were not envisaged to be operated for such a period of time. Hence, negative safety outcomes may be anticipated if current maintenance activities are not adapted to take into account the ageing process in these aircraft.

4.2 This DP seeks to encourage the voluntary uptake of Options 2 – 4 inclusive that uses independent, objective engineering data to:

- Acknowledge the ageing process in Australia’s piston engine fleet;
- Provide ageing aircraft awareness education to Registered Operators and others to better assist them in understanding the ageing process in order to make informed decisions on the future management of their aircraft;
- Encourage the sharing of ageing aircraft information, knowledge and costs among Registered Operators to better inform decisions to minimise the negative aspects of the ageing process; and
- Raise the overall level of safety of the Australian aviation industry.

4.3 CASA invites comments and suggestions on this DP from all interested parties so that any future regulatory changes are fit for purpose.

4.4 Comments may address the proposed actions as a whole, specific parts of the proposed action or suggest an alternative action. Suggestions to vary the proposed changes should detail how any alternative action would provide an equivalent level of safety for the total package. **Suggestions should be supported with objective engineering data and analysis.**

DP Response Form

AGEING AIRCRAFT MANAGEMENT PLAN

Please complete your response by **7 November 2012**
and return it by one of the following means:

Online (preferred method*) casa.gov.au/newrules/ors

Fax 1800 653 897 (free call in Australia)

Post (no stamp required in Australia)

CASA's Standards Development Branch
Reply Paid 2005, Canberra ACT 2601, Australia

E-mail (use the response format in this DP)

dp1205cs@casa.gov.au

* A web-based online response form is offered as an alternative to the printed form in this DP. Online submission is the preferred method of sending your comments to CASA. If you are connected to the Internet, type casa.gov.au/newrules/ors into your web browser and follow the links for this DP.

Your Details

Please provide relevant information below and indicate your acceptance or otherwise of the options presented in this DP by ticking [✓] the appropriate boxes.

Your name: _____ ARN* (if known): _____

Organisation: _____ ARN* (if known): _____

* Aviation Reference Number, usually your CASA-issued licence or certificate number

Address: _____

Your telephone number (optional): (to enable the Project Manager to contact you as necessary)

Do you consent to have your name published as a respondent to this DP? YES [] NO []

Signed: Date:

How are you responding to this questionnaire/proposal, i.e. whose views are represented in your response?

- | | | | | | |
|---------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------|
| <input type="checkbox"/> Private individual | <input type="checkbox"/> Aviation Industry body/association | <input type="checkbox"/> Staff association/union | <input type="checkbox"/> Government agency/authority/department/council | <input type="checkbox"/> Aviation business owner/service provider | <input type="checkbox"/> Other |
|---------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------|

Please advise your main involvement in aviation:

- | | | | | | |
|-------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <input type="checkbox"/> Passenger/public consumer of aviation services | <input type="checkbox"/> Air crew for passenger-carrying activities | <input type="checkbox"/> Air crew for non-passenger-carrying activities | <input type="checkbox"/> Ground support for passenger-carrying activities | <input type="checkbox"/> Ground support for non-passenger carrying activities | <input type="checkbox"/> Other (specify below*, e.g. parachutist) |
|-------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------|

* **Details:** _____

Are you satisfied with CASA's consultation on this issue?

- | | | | | |
|-----------------------------------------|------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Very satisfied | <input type="checkbox"/> Satisfied | <input type="checkbox"/> No opinion | <input type="checkbox"/> Dissatisfied | <input type="checkbox"/> Very Dissatisfied |
|-----------------------------------------|------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------------|

**Key Options/Issues
(complete in conjunction with DP Section 3)**

CASA invites you to advise your comments on the subject matter options in this DP by indicating your preference by ticking [✓] the appropriate box and commenting below:

Option 1 – Do nothing: No further research, oversight or management of the ageing aircraft fleet. This would produce minimal further opportunity to identify and address ageing related catastrophic events before they occur

- proposal is acceptable without change
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances

Comments (including an estimate of additional costs/impacts): _____

Option 2 – Matrix Tool: Further develop the prototype Matrix Tool into a production version, permanently available on the CASA website to enable Registered Operators to more accurately establish the likelihood that their aircraft may be suffering from the negative impacts of ageing

- proposal is acceptable without change
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances

Comments (including an estimate of additional costs/impacts): _____

Option 3 – E-Learning: Further promote and encourage the use of the recently developed Ageing Aircraft Awareness E-Learning course to improve Registered Operator’s knowledge. This would better equip Registered Operators to manage their aircraft in relation to ageing aircraft issues

- proposal is acceptable without change
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances

Comments (including an estimate of additional costs/impacts): _____

Option 4 – Type Clubs: Further encourage the participation or formation of Type Clubs where members are able to collectively share their knowledge and experience in the support of their ageing aircraft. This might include the ability to amortise any costs associated with the development of CAR 42 approved SoMs, or CASR 21M developed STCs, repairs or technical substitution lists etc. to best support their ageing aircraft type

- proposal is acceptable without change
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances

Comments (including an estimate of additional costs/impacts): _____

Option 5 – Professional Development: Further develop and deliver professional development training to LAMEs and APs to ensure enhanced SoM outcomes that genuinely address all aspects of the ageing process in the Australian Operating and maintenance environment

- proposal is acceptable without change
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances

Comments (including an estimate of additional costs/impacts): _____

General and Specific Comments

A large rectangular box containing 25 horizontal dotted lines for writing comments.

Thank you

Your response ensures balanced consideration by CASA of the interests of the aviation community and consumers.

Additional information is available from:

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