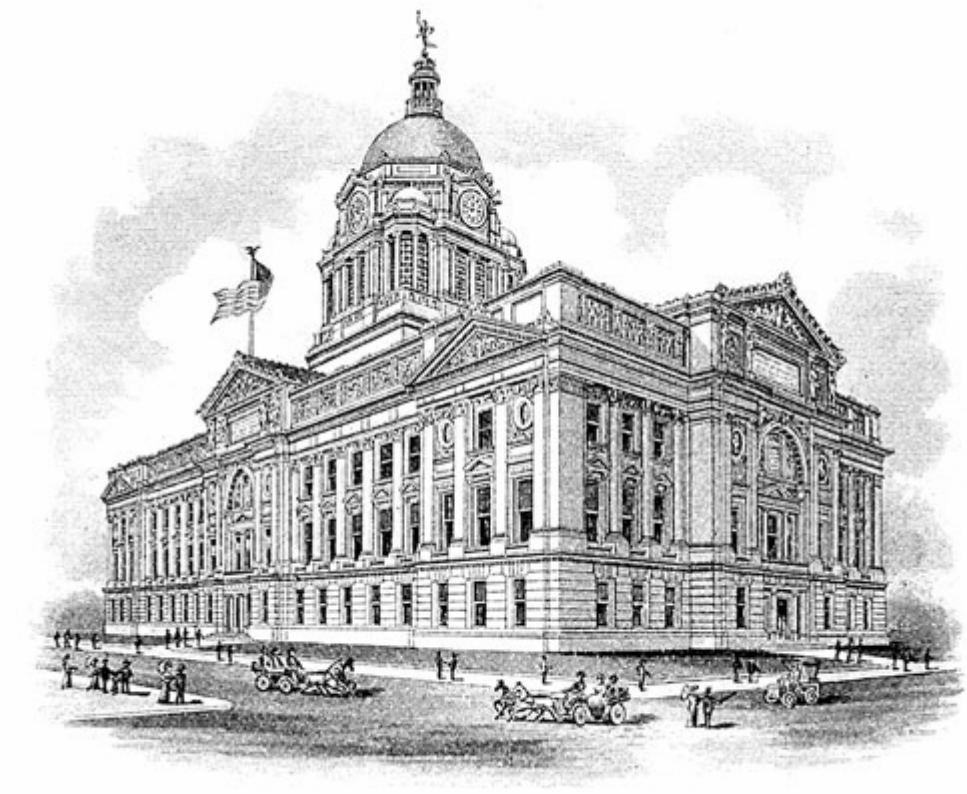
Response to Coronial inquiry.
Fatal air accidents.



Prepared by Professional Aviators Investigative Network.

To whom it may concern.

One of the twenty five categories in a research project being undertaken by a small, privately funded group of qualified, experienced aviation professionals focuses on Coronial inquiries made in response to fatal accidents involving aircraft.

The purpose was, without bias, prejudice, fear, agenda or other motive to achieve a clearly defined goal. The improvement of safety for the travelling public and the people who work within the aviation industry.

The approach to the construct has been simple, and asked only two questions.

a) Was the accident preventable ?.

b) What steps have been taken to prevent repetition in similar circumstances ?.

Research was conducted over a wide area including:-

a) Extensive operational background analysis, private anecdotal and publicly available data; and, considered expert opinion.

The intent was to present alternative or revised assessment of accidents where, in the opinion of the group, the most probable and ranked contributing causes related to the incidents were not clearly defined or presented for Coronial considerations.

It became apparent over some two hundred man hours of research into some thirty investigations that 3 powerful elements were effectively preventing a satisfactory conclusion to clearly defining the contributing causes and pro active prevention of a similar repetition of the event.

We noted the following items:-

1) The frustration expressed by various Coroners, through transcripts, where trying to establish a clear picture through the lack of deep technical knowledge and sound advice.

2) The frustration expressed by the Australian Transport Safety Bureau (ATSB) in almost every report published, where sound advice and research has been belittled or waved aside as insubstantial.

3) The seemingly deeply entrenched culture of constant antagonism and abrogation of responsibility existing between the Civil Aviation Safety Authority (CASA) and the ATSB.

These issues appear to often place the Coroner in the invidious position of having to make a choice between 2 'expert' opinions.

The following incident reports are from a wide range available for consideration; they, we believe encompass the issues noted.

We believe that non of the promised legislation, against which many Coroners based their recommendations, is available for practical use.

We believe none of the Coroners recommendations have been adopted to produce, in any practical, meaningful way improved safety outcomes.

We believe that, in real terms, there has been no pro active approach to reduce the self evident risks or casual factors related to the provided reports.

We firmly believe that all the presented incidents still have the potential to be repeated.

The report editors.

Events considered.

1) CFIW: East of Cape Hillsborough, QLD, Bell 407, VH-HTD; 17 October 2003.

Report - R20050002.

Issue date 14 March 2005.

http://www.atsb.gov.au/media/24411/aair200304282_001.pdf

http://www.atsb.gov.au/publications/recommendations/2005/r20050002.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority recommending: a review of the night VFR requirements, an assessment of the benefits of additional flight equipment for helicopters operating under night VFR and a review of the operator classification and/or minimum safety standards for helicopter EMS operations.

ATSB Safety Recommendation.

> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review it's operators classification and/or it's minimum safety standards required for helicopter Emergency Medical Services operations. This review should consider increasing; (1) the minimum pilot qualifications, experience and recency requirements, (2) operational procedures and (3) minimum equipment for conduct of such operations at night.

Coroner Hennessy.

> 12. That CASA consider regulating for the initial training of a helicopter pilot to include night VFR training.
>
> 13. That CASA and the industry move towards a national system of accreditation and uniform standards for provision of EMS services in Australia.
>
> 14. That CASA investigate reclassification of EMS helicopter operations into charter category, or create a separate EMS category of aviation in order to provide the benefits of increased level of regulation and CASA oversight, than that presently available under the aerial work category.
>
> 15. That CASA ensure that appropriate information be provided to pilots on an ongoing basis regarding the issue of spatial disorientation.
>
> 16. The Coroner supports CASR draft regulations point 61 and 133 becoming final.
>
> 17. That beacons, both visual and radio, be placed on prominent and appropriate high points along routes commonly utilised by aero-medical retrieval teams, including Cape Hillsborough.
>
> 18. The Coroner supports the ATSB recommendations 20030213,and promulgation of information to pilots; 20040052, assessment of safety benefits of requiring a standby altitude indicator with independent power source in single pilot night VFR; 20040053, assessment of safety benefits of requiring an autopilot or stabilisation augmentation system in single pilot VFR; and R20050002, review operator classification and minimum safety standards for helicopter EMS operations.

CASA response.

Date Issued: 29 August 2005

CASA has reviewed its previous advice in relation to this matter [provided with the directly involved parties comments to draft occurrence report 200304282] and I am advised that the Authority has no additional comment to provide in response to recommendation R20050002. However, it should be noted that resources to review this action will be allocated in accordance with CASA's reviewed priorities. For your information, a copy of CASA's initial advice is recorded below. CASA advice

CASA will:

* Review the requirements for helicopter EMS operations to include consideration for two pilots, or a stability augmentation and/or autopilot system;

* Review the special operational and environmental circumstances of helicopter EMS services, particularly with regard to pilot qualifications, training and recency including instrument flight competency; and

* Review the pilot recency requirements for helicopter EMS operations to ensure that operator check and training processes are focused on the EMS environment.

CASA 10 October 2007.

The following updates the actions previously advised in response to the recommendation:

- The proposed review of EMS operation crewing and aircraft equipment requirements will take place as part of the re-instated project to finalise Civil Aviation Safety Regulation (CASR) Part 133. As you may be aware, the regulatory review aspects of CASR Part 133 have, under instruction from the CASA CEO [deleted], been on hold for some time. However I can now advise that this project is scheduled to recommence in October 2007, and that this subject matter will be incorporated in the consideration of CASR 1998 Part 133.T.3.
- CASA has been considering these issues (particularly the special operational and environmental circumstances associated with EMS operations) for some time now as part of the review processes for the introduction of Night Vision Goggles (NVG) into Australian helicopter night operations. As a result of this review we have incorporated helicopter EMS operations as a *Permitted NVG Operation* in the new NVG Civil Aviation Order (CAO) 82.

This CAO (which is now in effect) empowers appropriately equipped, trained and approved EMS AOC holders to use NVG on their night EMS primary and secondary response tasking. Both CASA and the industry consider this to be a major safety initiative and we will be monitoring its effect over the next twelve months by way of a formal research process.

- EMS pilot qualifications, training and recency requirements will be included in the CASR Part 133 project consultation and review processes, however I can also advise the (as part of its normal surveillance processes) CASA will continue to review these matters in current operations as well.

Additionally I can advise that pilot qualification, training and recency requirements were also reviewed by both CASA and the industry as part of the consultation processes associated with the previously mentioned NVG implementation project, and that the industry subject matter experts at these meetings included several representatives from AOC holders who conduct EMS operations in both VFR and IFR situations at diverse operational locations.

Comment - April 2012.

CASR 133 is still not available for use.

It is our opinion that essentially, the accident scenario potential to reoccur has not been eliminated.

2) Willowbank, Qld; Cessna U206, VH-UYB; 2 January 2006.

Safety Recommendations - R20070030, R20070031, R20070032.

Issue date 30 October 2007.

http://www.atsb.gov.au/media/1361516/aair200600001_001.pdf

http://www.atsb.gov.au/publications/recommendations/2007/r20070030.aspx

http://www.atsb.gov.au/publications/recommendations/2007/r20070031.aspx

http://www.atsb.gov.au/publications/recommendations/2007/r20070032.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority:-

That CASA review CAAP 42B-1(0) and AWB 02-003 Issue 2 in order to clearly define the required inspection intervals affecting Private category aircraft airframe items.

CASA to advise all sport parachuting organisations to include in their TOM (Training Operations Manual), procedure for harnessing together tandem parachutists during the take off till reaching safe release height.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority direct that non-Australian Parachute Federation sports parachuting organisations conduct a review of their aircraft in order to identify and mitigate potential aircraft equipment-related crash survivability issues.

Coroner Barnes.

http://www.courts.qld.gov.au/__data/assets/pdf_file/0011/86726/cif-willowbank-aircrash-20081124.pdf

1) I recommend that CASA issue an advisory bulletin alerting operators of Cessna 206 aircraft of the possible dangers of modifying those aircraft in accordance with STC 2123NM and the need to vary the manner in which the aircraft is operated if the modification has been made.

2) I recommend that CASA reconsider its interpretation of s27 of the Civil Aviation Act and Civil Aviation Regulation 206 and revise its policy of devolving the surveillance of all aspects of publicly offered tandem parachuting to the APF.

3) In view of the evidence that the use of single point cabin floor restraints as mandated by the APF is not supported by the industry, the APF should review the issue and publish its findings.

4) Likewise, it should review the evidence relevant to the safety impact of tandem skydivers wearing helmets and require its members to implement the findings of that research.

5) I recommend CASA consider requiring pilots who have not received current training in responding to an EFATO to undertake such training before their licences are next renewed.

CASA response.

Date Issued: 13 March 2008.

CASA has no objection to the safety issue at 4.2.2 in the draft report and the recommendation. CASA is aware that this is an area that requires clarification and will pursue this further now that the final report has been released.

CASA wrote the Australian Skydiving Association on 11 December 2007 requesting that the organisation action this recommendation.

Comment – April 2012.

The draft version of CAAP 42-B was released in January 2012; this amendment was not initiated to acquit the original R20070030 i.e. less ambiguity. CASA state that the amendment was to bring the CAAP in line with current regulations.

Coroner Barnes mounts a very strong argument against CASA's interpretation of CAR 206, in relation to tandem parachuting operations. The CASA still believe that the applicable sport/recreation body, in this case the APF, adequately regulates this operation. However the APF still has very little say in the maintenance and operation of the aircraft used for parachuting.

In our opinion:-

The CASA continue to abrogate all responsibility for this type of operation.

That the potential for this accident scenario to reoccur has not been eliminated.

We believe that the CASA should, at least, be including 'tandem parachuting' into the yet to be released CASR Part 135.

3) EFATO: Toowoomba (ALA), QLD; Beechcraft C90, VH-LQH; 27 November 2001.

Safety Recommendations – R20040064, R20040065, R20040066, R20040067, R20040068, R20040069.

Issue date 25 June 2004.

http://www.atsb.gov.au/publications/recommendations/2004/r20040064.aspx

http://www.atsb.gov.au/media/24353/aair200105618_001.pdf

http://www.atsb.gov.au/publications/recommendations/2004/r20040065.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040066.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040067.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040068.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040069.aspx

http://www.atsb.gov.au/media/24352/aair200507077_001.pdf

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority:-

(1) The ATSB recommends that CASA conduct a national review of the level of operator compliance with the requirements of mandatory turbine engine condition monitoring programs, particularly for passenger carrying operations.

(2) The ATSB recommends that CASA review its surveillance processes to ensure that, during future surveillance activities, priority is given to confirming operator compliance with the requirements of mandatory turbine engine condition monitoring programs, particularly for passenger carrying operations.

(3) The ATSB recommends that CASA review its airworthiness surveillance processes and Certificate of Approval assessment processes to ensure that it provides adequate guidelines to assist CASA inspectors to identify priority areas for consideration during surveillance and approval activities, such as programs for compliance with the requirements of Airworthiness Directives.

(4) The ATSB recommends that CASA review its airworthiness surveillance processes and Certificate of Approval assessment processes to ensure that it provides specific guidelines to assist CASA inspectors to assess whether a maintenance organisation has adequate personnel resources to conduct its required activities.

(5) The ATSB recommends that CASA consider providing formal advisory material for operators and pilots, based on relevant research and publications, about managing engine failures and other emergencies during takeoff in multi-engine aircraft below 5,700 kg MTOW. This material should include the factors to be considered by operators when developing procedures for responding to such emergencies.

(6) The ATSB recommends that CASA consider and evaluate options to improve the suitability of industry practices for training pilots to make appropriate decisions when responding to engine failures and other emergencies during critical phases of flight in multi-engine aircraft below 5,700 kg MTOW. This review should include an assessment of the suitability of utilising synthetic training devices for the purpose of training pilots to make decisions regarding emergencies.

Coroner Barnes.

http://www.courts.qld.gov.au/__data/assets/pdf_file/0005/86711/cif-duckett-ab-johnson-bw-hughes-aj-thompson-ka-20070809.pdf

Relevant quote: "*It is impossible to say that had CASA been more searching during the audit undertaken in the period 20 – 23 August 2001 that the problems that lead to the fatal crash would have been detected. Nonetheless the failure of CASA to make any further inquiries in relation to these aspects of the operator's maintenance systems and performance was, in my view, less than the public could reasonably expect of the authority."*

Coroner Recommendations.

1. Automatic recording of engine parameters.

As discussed earlier, the effectiveness of ECTM as a diagnostic tool can be negated if an over temperature event is not noted and reported by the pilot or if pilots fail to accurately record data in the correct circumstances. Apparently, there are now available systems that automatically record the relevant engine parameters so that destructive events such as a "hot start" can become known to maintenance personnel via ECTM.

I recommend that CASA consider rescinding the Airworthiness Directive that allows time between overhauls to be extended based on manual ECTM systems and stipulate instead that such extensions can only be accessed when monitoring of the engines' condition utilises automatic recording of relevant engine parameters.

2. Auditing of ECTM compliance.

The time allowed between overhaul of the engine of the incident aircraft was extended from 3,600 to 5000 hours if the requirements of the relevant Airworthiness Directive were adhered to. ECTM is a crucial element of this arrangement. On this basis, the ATSB recommended that CASA review compliance with the relevant AD and in particular adherence to ECTM procedures. CASA declined to alter its audit system to give particular focus to this. In my view its refusal was misconceived and I recommend that they give further consideration to the issue.

3. Guidance for CASA field staffing assessing maintenance resources.

CASA is required to oversight various aspect of an operators maintenance systems. For example, it must approve the appointment of key personnel such as the maintenance controller and must issue a certificate of approval before an individual or organisation can engage in maintenance of an aircraft.

Obviously, the experience and qualifications of individuals intending to undertake these roles is only one factor which is likely to impact on their standard of performance. The evidence given at this inquest demonstrates that workload is also important, yet the CASA officers involved in the various approval processes seem to have given scant attention to that issue CASA manuals do not give any guidance as to how they should undertake such assessments. CASA submits that its inspectors have extensive industry experience and can therefore adequately determine whether, for example, an organisation has adequate staff. I consider the evidence in this case shows that confidence is misplaced. Accordingly I recommend that CASA give further consideration to the development of tools designed to assist its inspectors undertake these assessments.

CASA response. (1 and 2).

Date issued: 23 August 2004.

Audit elements covering turbine engine condition monitoring programs (ECMP) are already included in the 2004/05 surveillance program of airlines, and are reflected in the Control Group Inspectors (CGI) Handbook. Furthermore, I am advised that after 2004/05, Airline Operations Branch will also add this element to the audit list in its

Regulatory Oversight System trial and will be scoped according to risk. I understand that the CASA's General Aviation Operations Branch has engine trend monitoring as an element for aircraft maintenance audits. However, it is not intended that this will be an element of particular focus.

CASA response. (3).

Date issued: 23 August 2004

Legislation relating to the approval of a maintenance facility is outlined in Civil Aviation Regulation (CAR) (1988) 30.

In summary the CASA believe the procedures they have in place are robust enough to oversee compliance to the legislation, the CASA references are:

a) The Certificate of Approval Procedures Manual;

b) the Surveillance Procedures Manual Ch 4.11&Ch 5.2;

c) the Safety Trend Indicator (STI) system;

d) the Control Group Inspector's (CGI) handbook; and

e) Compliance Management Instruction (CMI) 3/66.

The following is an example from the COA Procedures Manual Assessment Procedures:

"Discretionary powers are provided under CAR 30(28) and these should be fully utilised by the Inspector to achieve and maintain a high standard of quality and competence among new applicants. The aim of the assessment is to ensure that the applicant achieves the highest practical standard within the regulatory framework.. Standards generally tend to erode, rather than improve, after approval is granted. The principal aim when assessing applications should be to ensure that the applicant achieves the highest possible standard before approval is granted. A firm but tactful insistence on the required standard for the facilities, equipment, technical data and qualified personnel should be applied.
The purpose of the assessment is to ensure that the applicant's facilities, including mobile facilities, equipment and resources are suitable for carrying out those activities to which the application relates."

(4) CASA Response.

Date issued: 23 August 2004

In addition to the information provided in CASA's response to recommendation R20040066, it should be noted that civil aviation legislation does not prescribe how many staff any organisation should employ within their organisation. The number of personnel each organisation should have is the responsibility of the certificate holder and dependent upon the individual management experience, type of work, processes involved, and the certification required.

To make a successful determination as to whether an organisation has adequate personnel resources (both in terms of competency and numbers), CASA relies primarily on the experience of the Inspector who conducts the audit and audit findings. Inspectors have extensive experience in a number of organisations and are therefore the most qualified to determine whether an organisation has adequate staff.

(5) CASA Response.

Date issued: 23 August 2004

CASA has reviewed this recommendation and considers it to be unrealistic given the large number of aircraft types involved and the sometimes unique characteristics and procedures associated with each type of aircraft. Plus there are a number of publications currently available dealing with multi-engine training and the factors to be considered by operators when developing procedures for responding to emergencies.

In addition, operators are required to produce appropriate procedures manuals that are reviewed by CASA.

(6) CASA Response.

Date issued: 23 August 2004.

The training syllabus for the initial issue of a multi-engine aeroplane endorsement is currently published by CASA in Civil Aviation Advisory Publication (CAAP) 5.23-1. It describes in detail the course of flight and ground training, which candidates seeking their first multi-engine endorsement (rating) should undertake. The syllabus is also applicable to subsequent endorsements and provides the knowledge and training requirements that detail appropriate decision making procedures to be employed by pilots when responding to engine failures and other emergencies in multi-engine aircraft.

For training in decision-making procedures, it is considered necessary to replicate as accurately as possible, the situation where an emergency could take place. In Australia, synthetic training devices for this class of aircraft are typically generic in nature and are seen as a useful aid in the training of emergency procedures.

However, due to the lack of realism, it is considered that they fail to simulate the environment sufficiently to be of benefit in this type of human factors training. It should also be noted that there is a substantial cost involved in the acquisition and operation of synthetic training devices.

Assessment of human factors is currently included in all pilot licence theory examinations and an assessment is made during flight testing. With the implementation of Civil Aviation Safety Regulation (CASR) Part 61, CAS A will incorporate human factors training in the Manual of Standards (MOS) for all flight crew licences.

Additionally, aspects of human factors are embedded within the MOS as 'Manage Flight' elements and provide for an assessment of the decision-making process and behaviour that must be achieved for the issue of a qualification.

Comment – April 2012.

CASA argue throughout the ATSB recommendations and Coroner's inquest, that their approval, audit and surveillance systems are robust enough to capture non-compliant, rogue elements of AOC or COA holders. However the evidence would seem to indicate otherwise.

Therefore, we believe, some of the causal factors in this accident have not been addressed by the regulator and remain 'high risk' for a similar accident scenario occurring.

4) In-flight mechanical failure: 93 km South of Derby, WA; R22, VH-UXF; 28 September 2003.

Safety Recommendation – R20030211.

Issue date 06 November 2003.

http://www.atsb.gov.au/media/24409/aair200304074_001.pdf

http://www.atsb.gov.au/publications/recommendations/2003/r20030211.aspx

As a result of the investigation, a safety recommendation was issued to the Civil Aviation Safety Authority:

The Civil Aviation Safety Authority mandate a one-off inspection of the Australian R22 fleet and if considered necessary, the R44 fleet to:

a) inspect the A166 clutch shaft for evidence of fretting where it mates with the A907 yoke, and;

b) inspect the shaft to yoke attachment bolt holes for fretting cracking or other wear, and;

c) identify and remove paint from beneath the yoke assembly bearing block plate, and;

d) identify and remove from service any instances of a non-approved mating compound on the A166 shaft to A907 yoke for the R22 fleet and the C166 shaft to C907 yoke for the R44 fleet.

Deputy Coroner Vicker.

Relevant Quote: *"I accept CASA is the regulatory body and the ATSB the investigatory body. However, any recommendation suggested to CASA in the form of the implementation of further regulation would be sent to the ATSB, as the investigative body, for consideration as to its reasonable implementation. It is frustrating the ATSB considers itself in a position of not being able to comment on whether or not a suggested recommendation is feasible, other than in the scope of implying they have already suggested it.*

Certainly publication of the relevant findings of ATSB investigations need to be well circulated in the flight industry to ensure all involved in modification and maintenance understand the importance of manufacture's recommendations.

As a non-expert, receiving expert input, I am of the view all the recommendations suggested are worthy of consideration by CASA."

Coroner Recommendations.

CASA consider the prohibition of passengers being carried in Robinson R22 helicopters engaged in low flying operations.

CASA consider prohibiting the carrying of non-crushable items in the under seat compartments of R22 helicopters engaged in low flight operations.

CASA seek input from the ATSB as to the reasonableness of mandatory inspection of both yoke and clutch shaft attachments in helicopters operating at low height for evidence of

fretting in view of the fact this seems to have been a factor in failure of the A166 component in an R22 in 1992, 2003 and 2005.

CASA require all helicopters involved in low flying operations to display current GMW figures in a conspicuous position.

ATSB continue to circulate relevant investigation findings to the industry to remind operators and maintenance engineers manufactures recommendations are made for sound technical reasons.

CASA response.

Date Issued: 22 December 2003

In response to the release of the Recommendation, the Civil Aviation Safety Authority advises the following: CASA has issued two Airworthiness Directives (copies attached) in response to the matters raised by the Australian Transport Safety Bureau. The Airworthiness Directives require the inspection of the main rotor yoke and clutch shaft joint for evidence of fretting, cracking, paint and the use of a non-approved jointing compound. If the inspection shows any of these signs, the yoke and shaft must then undergo a magnetic particle inspection procedure before being re-installed in the aircraft. Airworthiness Directive AD/R22/51 became effective on 12 November 2003 and AD/R44/51 [sic] became effective on 3 December 2003.

Comment – April 2012

CASA enacted a AD for both R22/R44 helicopters in November and December 2003, however the FAA had enacted a similar AD on 25 June 1998:

http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/4dfc023a6f48061586257784005eabfa/38a23bf62353e53f86256ccc006926a7!OpenDocument&ExpandSection=-3

There was a similar failure of the A166 clutch shaft in a 1992 incident, were CASA were not aware of the FAA AD?.

Helicopter aerial mustering is not to be incorporated in the new Part 133, therefore the CASA oversight of this type of operation will remain limited.

The coroner's recommendations pertaining to crash survivability still remain relevant.

5) En-route Engine(s) Failure (Fuel starvation): Newman Airport, WA; Cessna 310R, VH- HCP; 26 January 2001.

Safety Recommendations – (1) R20020205,(2) R20020193, (3) R20020194, (4)R20010195.

Issue Date: (1)(2)(3) 23 October 2002, (4) 07 September 2001.

http://www.atsb.gov.au/media/24547/aair200100348_001.pdf

http://www.atsb.gov.au/publications/recommendations/2002/r20020205.aspx

http://www.atsb.gov.au/publications/recommendations/2002/r20020193.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010195.aspx

NB. This SR was originally promulgated by the ATSB in response to:

http://www.atsb.gov.au/publications/investigation_reports/2000/AAIR/aair200003130.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority:

> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the provisions for planning a fixed fuel reserve and determine if this fuel should be contained in the fuel tanks that are to be used during the approach and landing.
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the general operational requirements, training requirements, flight planning requirements and guidance material provided to pilots conducting VFR operations in dark night conditions
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the required qualifications and/or competencies for chief pilots, with particular reference to management and system safety issues.
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority consider proposing an increase in the operations' classification, and/or the minimum safety standards required, for organisations that transport their own employees and similar personnel (for example contractors, personnel from related organisations, or prisoners, but not fare-paying passengers) on a regular basis. This recommendation applies to all such operations, regardless of the take-off weight of the aircraft involved.

Coroner Hope.

> Relevant Quote: *"In recent years CASA's regulatory efforts have been focused on protecting fare paying passengers. This appears to have resulted in a lesser degree of surveillance and supervision of aerial work and private operations.*
>
> *In a letter to the Chairman of CASA dated 30 September, 1999 the Minister for Transport, Mr John Anderson MP, expressed the view that "It should not be the passengers job to ascertain that an operator is up to standard."*
>
> *It would appear that this concern should apply equally to passengers being carried by aerial work operations particularly where those operations regularly carry a large number of passengers."*

Coroner Recommendation.

> I support the ATSB Safety Recommendation R20010195 to the effect that CASA should consider proposing an increase in the operations classification and minimum safety standards required for organizations that transport their own employees and similar personnel on a regular basis.

CASA Response.

Date Issued 13 December 2002

CASA does not agree with this Recommendation as it considers that there is sufficient guidance on fuel management currently available. A rule, stipulating in which tank fuel should be located, would be overly prescriptive. CASA is in the process of developing new General Operating and Flight Rules (GOFR) which will be contained in proposed CASR Part 91. CASA published Notice of Proposed Rule Making NPRM 0101OS on 17 September 2001 which relates to GOFR. The NPRM included a draft Rule 91.375 which states:

"(1) Before an aircraft commences a flight, the pilot in command of the aircraft must plan the flight in such a way as to ensure that enough fuel will remain in the aircraft's tanks after landing to allow it to fly for at least 30 minutes (or for rotorcraft, 20 minutes) at normal cruise power under ISA conditions at 1500 feet above the place of intended arrival".

In responses to the NPRM, no person commented that the rules should go beyond this and stipulate which tanks should contain the fuel on landing. Civil Aviation Advisory Publication CAAP 234-1(0) provides advice on fuel management. In addition, operators are required to detail in their Operations Manuals how fuel will be managed during flight.

CASA Response.

Date Issued 22 March 2002

During July 2003, CASA published NPRM 0309FS, including a draft of CASR Part 61.

Those draft regulations included a proposal for the holder of a NVFR endorsement to demonstrate competency to carry out activities authorised by a NVFR endorsement to an appropriately qualified flight instructor, in the appropriate category of aircraft within the previous 24 months, or complete a NVFR flight review.

In December 2006, CASA published 'CAAP 5.13-2(0) NVFR Rating'. That CAAP included sections 'Keeping current', 'NVFR hazards', 'Threat and error management', 'Planning NVFR operations' and 'Conducting NVFR operations'. It also included competency standards for night flying under the VFR, as guidance for trainees, instructors, testing officers and holders of NVFR ratings.

On 01 March 2007, the CASA website advised the CASR Part 61 project status as follows:

"Comments to NPRM 0309FS evaluated. Revised legal drafting underway in OLD. NFRM being prepared. MOS being prepared and circulated for consideration/comments. Subject to review and validation per CEO Directive 16/2004."

Date Issued 13 December 2002

CASA acknowledges the intent of this Recommendation. It is intended, under the proposed CASR Part 119 to introduce a Safety Management System, among other issues, for air transport operators. Essentially these proposals provide for training and checking for crews flying with small operators and a greater regulatory emphasis on the responsibilities of key personnel in a company, including the head of flying operations.

Date Issued 04 February 2002

As you are aware, CASA is presently reviewing the standards contained within the existing Civil Aviation Regulations (CARs) and Civil Aviation Orders (CAOs) with regard to the Classification of Aircraft Operations. The input and recommendations contained within Air Safety Recommendation R20010195 will be taken into consideration and addressed as part of this project. The outcome of the review will determine which category employees (and similar personnel such as contractors) are placed and the standards that will apply to their transportation in aircraft. I trust that this review will satisfactorily address the issues raised in this Air Safety Recommendation. ..../Cont--

--/Cont.

The following updates the actions previously advised in response to the recommendation:

Date issued 13 December 2002

CASA acknowledges the intent of this Recommendation. As part of the proposed CASR Part 61, CASA is developing the requirements for night VFR ratings which will be based on the existing Civil Aviation Order CAO 40.2.2. In addition, a draft competency standard for night visual flight operations has been developed for inclusion in the proposed CASR Part 61 Manual of Standards. CASA plans to publish a Notice of Proposed Rule Making in relation to this matter in March 2003.

Date Issued 14 November 2002

The draft Classification of Operations policy document is with the Standards Consultative Committee for consultation and it is anticipated that it will go to the Aviation Safety Forum for consultation on the 6th of December 2002.

As a result of this consultation, CASA proposes releasing an NPRM early next year to consult with the aviation industry with a view to amend CAR 206 to give effect to changes which would see recommendation R20010195 being adopted.

Date Issued 02 February 2009

A Notice of Proposed Rule Making (NPRM) proposing amendments to Civil Aviation Regulation (CAR) 206 issued in March 2003. Responses to this NPRM and the associated review of the Classification of Operations confirmed that the proposed amendment to CAR 206, which would accommodate this recommendation would be problematic. Consequently, CASA has decided proceed only with the other amendments to CAR 206. The associated NFRM is currently with the Department of Transport and Regional Services for clearance prior to Ministerial approval.

However, under the new Civil Aviation Safety Regulations, Corp-orate Operations will be classified as Aerial work and will be regulated under CASR Part 132. The carriage of patients and other personnel (other than air transport operations) will be regarded as Aerial Work under subpart pf Part 136 to be titled Emergency and Medical Services Operations. It is proposed that 'Emergency Services Flights' will cover aerial fire-fighting, law enforcement, and search and rescue operations., while 'Medical Services Flights' will cover air ambulance flights, health services flights, and emergency medical services flights. The development of these regulations is proceeding in consultation with industry.

Comment – April 2012

Proposed CASR Part 132 for Aerial Work Operations is still not available; therefore, we believe, the accident scenario potential to reoccur has not been eliminated.

6) EFATO: Jandakot Airport, WA; Cessna 404, VH-ANV; 11 August 2003.

Safety Recommendations – R20040068, R20040069 (also relevant to Toowoomba C90 accident, see reference Safety Recommendations (5)&(6)).

The coroner also references R20010195 in one of his recommendations (refer Newman Cessna 310 accident). Issue date 25 June 2004.

http://www.atsb.gov.au/publications/investigation_reports/2003/AAIR/pdf/aair200303579_001.pdf

http://www.atsb.gov.au/publications/investigation_reports/2003/AAIR/pdf/aair200303579_003.pdf

http://www.atsb.gov.au/publications/recommendations/2004/r20040068.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040069.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010195.aspx

Coroner Hope.

Relevant Quote: "*While the Memorandum of Understanding between CASA and the ATSB which is currently in effect dated 20 September 2004, only requires CASA to respond to the ATSB in writing, such response to contain clear statements of acceptance, partial acceptance or rejection of each recommendation, it is unfortunate that the above CASA responses do not identify any research conducted by CASA or information obtained, particularly when CASA has not accepted ATSB recommendations.*

The air safety system in Australia depends on interaction between the regulator (CASA) and the investigator (ASTB). The investigator does not have the power to require that any safety recommendations be implemented and in that context it is particularly important that the regulator should respond adequately and appropriately to the recommendations of the investigator."

Coroner Recommendations.

1. That in future CASA ensure that reasonably comprehensive audits are in fact conducted in respect of all CAR 30 organisations and CAR 35 authorised persons on a regular basis of no more than 24 months duration.

2. That CASA require its CAR 30 design organisations and CAR 35 authorised persons to ensure that engineering orders contain sufficient information in each case to provide a clear indication as to the basis of the engineering order and specify whether the engineering order is proposing a "like for like" replacement or the construction of an entirely new item. In the event that an engineering order is approving a material change, the relevant file should contain a metallurgical report providing information in relation to the material in question.

3. That in the event that CAR 35 authorised persons or CAR 30 design organisations do not prepare engineering orders containing sufficient information, then consideration should be given to not permitting those persons or organisations to continue to exercise those functions.

4. I support the ATSB safety recommendation R20010195 to the effect that CASA should consider proposing an increase in the operations classification and minimum safety standards required for organisations that transport their own employees and similar personnel on a regular basis.

6. That CASA should review the process for issuing engineering orders which relate to aircraft to ensure that those who own, operate or maintain any aircraft effected by an engineering order receive a copy of that order irrespective of whether or not those parties commissioned the engineering order.

....cont/--

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14. That CASA review the quality of airport emergency plans for major general aviation airports to ensure that those plans provide for an immediate response for an emergency at or near the airport, contain clear instructions as to who is to be Incident Controller in the case of an immediate emergency and subsequently upon the arrival of police officers at the scene and detail when and how a change of Incident Controller is to be effected.

15. That the Minister issue a charter letter providing direction to CASA to the effect that greater priority be allocated to safety issues relating to general aviation, with a view to significantly reducing the number of general aviation fatalities.

Comment April 2012.

The responses from the CASA were many, varied and contradictory. It is believed that Coroner Hope accurately summarised the situation and made suitable recommendations.

The opportunity for the event to reoccur exists today as it did then.

7) CFIT: Near Benalla, Vic; Piper PA31T Cheyenne, VH-TNP; 28 July 2004.

Safety Recommendations – (1) R20060004, (2) R20060008.

Issue Date: (1) 7 February 2006, (2) 9 March 2006.

http://www.atsb.gov.au/media/24535/AO200402797.pdf

http://www.atsb.gov.au/publications/recommendations/2006/r20060004.aspx

http://www.atsb.gov.au/publications/recommendations/2006/r20060008.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority :

> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority (CASA), review the requirements for the carriage of on-board recording devices in Australian registered aircraft as a consequence of technological developments.
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the requirements for Terrain Awareness Warning Systems for Australian registered turbine-powered aircraft below 5,700 kgs, against international standards such as ICAO Annex 6 and regulations such as FAR 91.223, with the aim of reducing the potential for CFIT accidents.

Coroner Spanos.

> http://www.coronerscourt.vic.gov.au/resources/e/9/e93d2c8048999f4ab0fdf10ef3821f75/robertharoldhenderson_264904+-+updated+finding.pdf
>
> Although Coroner Spanos doesn't make any formal recommendations to any of the stake holders, she does reach some very reasoned comments and conclusions:

Extracts from Coroner Spanos report:

1. The internal investigation conducted by Air Services Australia concluded with 7 recommendations. I was appraised during the inquest of measures taken to address the 6 recommendations within the province of ASA. In particular, as at the time of the inquest the Australian Advanced Air Safety System (TAAATS) had been enhanced with a graphic tool which readily displays an aircraft's cleared route as recorded on the flight data record, on the controller's screen, and the Manual of Air Traffic Services (MATS) had been amended to mandate communication with a pilot in order to resolve a RAM alert. ASA are to be commended for having addressed these recommendations which provide greater clarity and guidance to controllers and should improve air safety.

2. Despite not finding navigation in dead reckoning mode a probable cause of the accident, the Australian Transport Safety Bureau issued a safety advisory notice regarding dead reckoning navigation, recommending that users of GPS navigation receivers should note this safety issue and take appropriate action to ensure familiarity with dead-reckoning operation and any associated receiver-generated warning messages. ATSB are to be commended for taking this action and I would reinforce the necessity for pilots to be aware of this important safety issue.

3. This is yet another "controlled flight into terrain" and highlights the need to improve air safety by revisiting the prevention of such accidents. During the inquest I was advised that TAAATS could be enhanced to incorporate a Minimum Safe Altitude Warning which would activate when aircraft were at risk of breaching their minimum safe altitude, but that this would involve significant expense, reconfiguration of airspace and other logistical difficulties. This was a position urged in particular by Mr Anderson on behalf of the Henderson family.

4. An alternative approach, supported both by Mr Harvey on behalf of ASA and Mr Livermore on behalf of the ATSB was to consider Terrain Awareness and Warning Systems (TAWS) which were not a legal requirement to be fitted in aircraft such as TNP at the time. They were however required to be fitted (by 30 June 2005) to all turbine aircraft with a capacity to carry 9 or more passengers, or with a weight of 5,7000 kgs or more. Again this does not encompass TNP. Had TNP been equipped with such a system with a predictive or forward looking terrain avoidance function, this accident may well have been prevented.

5. But for a reading of section 72(2) of the Coroners Act 2008 which does not encompass federal Ministers, public statutory authorities or entities, I would have couched Comment 4 in terms of a recommendation that the Civil Aviation Safety Authority reconsider the introduction of a requirement that aircraft with a passenger capacity such as TNP be fitted with a Terrain Awareness and Warning System.

NB: There is also strong anecdotal evidence that even if VH-TNP had of been fitted with TAWS, it would not have stopped this CFIT from happening.

CASA Response

Date Issued 11 May 2006

The Civil Aviation Safety Authority will analyse the cost benefit of the recommendation regarding the carriage of on-board recording devices to this type of operation.

Date Issued 16 August 2006

CASA accepts the recommendation and will take the following action:

CASA will consider various aspects in relation to the fitment of Terrain Awareness Warning Systems for Australian registered turbine-powered aircraft below 5700kgs, including:

- cost benefit analysis of costs to industry;
- how fitment would improve safety in this class of aircraft;
- CASA policy on fare paying passengers;
- impact on freight operators;
- training in the use of the equipment; and
- the lead time required prior to fitment.

The following updates the actions previously advised in response to the recommendation:

Date Issued 17 July 2007

On the issue of on board recording devices, this is a cost and maintenance burden with existing equipment. Low cost/new technology units are not currently available.

Date Issued 07 September 2007.

As you are aware, on 11 May 2006 CASA advised of an intention to conduct a cost/benefit analysis of the recommendation regarding the carriage of on-board recording devices to this type of operation.

I understand that CASA has previously investigated this matter and, based on the equipment available at the time, could not justify mandating carriage of recording devices on low capacity aircraft. However, given other priorities, this has not yet been confirmed by way of a cost/benefit analysis.

I have now directed that a cost/benefit analysis be undertaken. I expect to have a result before the end of the year and will forward the results to you.

Date Issued 20 December 2007

I refer to the letter dated 11 October 2007 from the Deputy Director, Information and Investigations to General Manager, Corporate Relations[CASA], enclosing an advance copy of amended Transport Safety Investigation Report on the fatal accident involving a Piper PA-31-350 aircraft registered VH-PYN, which occurred near Condobolin, New South Wales on 2 December 2006.

The draft Cost Benefit Analysis for on-board recording devices will be completed by the end of this week [21 Dec 2007]. Consideration of this is to be completed and CASA will write to you again by the end of January 2008.

Date Issued 23 November 2008.

As you would be aware, there has been extensive liaison between CASA and the ATSB on this matter over the last twelve months. I can now advise that CASA has completed its cost benefit analysis (CBA). The CBA results confirm CASA's initial view that there is no justification to mandate the carriage of recording devices in smaller aircraft. The analysis considered 7 categories of small aeroplane operations, from Low Capacity RPT and Charter, down to aerial work, business and private operations and did not find fitment justified on safety grounds.

CASA believes that the safety regulator's focus should be on passenger carrying operations and preventing accidents by fitment of new generation technologies such as Airborne Collision Avoidance Systems, Terrain Avoidance and Warning Systems and Automatic Dependent Surveillance Broadcast equipment, rather than mandating fitment of OBR devices to assist in determining the cause of an accident.

The CBA determined that the industry was unlikely to make this investment on its own accord. The use of quick access recorders by larger airlines provides considerable economic and business benefits which outweigh the costs involved. With the recent emergence of low cost and light weight recorders for small aircraft it is expected that the take up of recorders may gather momentum over the next couple of years once suppliers become more active in the market and prices come down. In the interim, CASA will be monitoring voluntary fitment of OBR.

Date Issued 17 July 2007.

In response to ATSB recommendation 20060008 in which CASA accepted the recommendation. I provide an update on CASA action in response to this recommendation.

CASA is investigating both the capital and installation cost of this equipment. CASA will then look at the applicability to the fleet and the safety benefits. This process should take 3-4 months.

Comment – April 2012

We believe that the ATSB investigation and Coroner's inquest have been severely compromised by various interested parties to this accident.

Subsequently a number of the causal factors to this accident have not been adequately addressed; therefore the risk of a reoccurrence of a similar accident remains very high.

8) En-route Catastrophic Engine Failures: Spencer Gulf, SA; PA31-350 Chieftain, VH-MZK; 31 May 2000.

Safety Recommendations – (1) R20000248, (2) R20000249, (3) R20000250, (4) R20010257, (5) R20010258, (6) R20020149.

Issue Date: (1)(2)(3) 30 October 2000, (4)(5) 19 December 2001, (6) 10 July 2002.

http://www.atsb.gov.au/media/1292159/aair200002157_001.pdf

http://www.atsb.gov.au/media/24343/aair200002157-A_001.pdf

http://www.atsb.gov.au/publications/recommendations/2000/r20000248.aspx

http://www.atsb.gov.au/publications/recommendations/2000/r20000249.aspx

http://www.atsb.gov.au/publications/recommendations/2000/r20000250.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010257.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010258.aspx

http://www.atsb.gov.au/publications/recommendations/2002/r20020149.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority:

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority amend Civil Aviation Order section 20.11 paragraph 5.1.2 to remove the restriction that it only applies to aircraft authorised to carry more than nine passengers.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority ensure that Civil Aviation Orders provide for adequate emergency and life saving equipment for the protection of fare-paying passengers during over-water flights where an aircraft is operating beyond the distance from which it could reach the shore with all engines inoperative.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority alert operators of aircraft equipped with turbo-charged engines to the potential risks of engine damage associated with detonation, and encourage the adoption of conservative fuel mixture leaning practices.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the operating and maintenance procedures for high powered piston engines fitted to Australian registered aircraft to ensure adequate management and control of combustion chamber deposits, preignition and detonation.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority educate industry on procedures and techniques that may maximise the chances of survival of a ditching event. Part of that education program should include the development of formal guidance material of the type contained in the UK CAA General Aviation Safety Senses leaflet 21A "Ditching".

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority examine whether the potential safety benefits from devices such as those that monitor and record aircraft fuel and engine system operation are sufficient to warrant them being required in general aviation aircraft used in air transport operations.

Coroner Cromwell.

Relevant Quote: " *I note that these instruments were recently considered by the State Coroner for Western Australia, Mr Alasdair Hope, during an inquest into the deaths of eight people in September 2000 as a result of an aircraft accident, known colloquially as the 'Ghost Flight'. An aircraft bound for the Western Australian goldfields lost pressurisation, and continued to fly on autopilot, with the occupants incapacitated or dead, until it ran out of fuel and crashed in Northern Queensland.*

I agree with Mr Hope's comments at pages 68-70 of his finding, which are reproduced below, and find that they are also apt in the present case. He said":

'While I accept that there are a number of issues involved in consideration of the use of aircraft recorders, it is obvious from the present case that there are potential safety benefits which could be derived from having such devices installed in aircraft such as the one in question.

While I agree that information at the Inquest would not enable me to make any observations about how such aircraft recorders could be made crashworthy, the cost of installation of such recorders and possible problems which might occur from the use of such recording systems in the conditions found in many smaller aircraft, there was evidence given at the Inquest to the effect that there have been recent developments in relation to such recording devices and there are obvious potential safety benefits, to be derived from their use.

I recommend that CASA examine whether the potential safety benefits from devices such as those that monitor and record aircraft systems and operation are sufficient to warrant them being required in general aviation aircraft used in air transport operations. If such a system is to be considered by CASA, then CASA should determine if one of the matters to be monitored by such a system should be the internal cabin pressure of such aircraft.' (Refers: Page 186-187 Coroner Hopes' report).

Coroner Cromwell Recommendations.

Engine operating procedures set out in the various versions of the Pilot Operating Handbooks and Flight Manuals for Piper Chieftain Aircraft be reviewed with the object of ensuring: (a) accuracy of the detonation limiting conditions; and (b) clarity of all engine operating procedures.

I therefore recommend that CASA and the ATSB consider how lines of communication could be improved so that communication continues to flow even in circumstances where litigation might be threatened or instigated.

I recommend that CASA consider how the development of On-Board Recorders suitable for use in light commercial aircraft might be facilitated. Should fitment of On-Board Recorders in these aircraft become feasible, I further recommend that their use be mandatory in the carriage of passengers for payment, or at least in RPT operations.

I recommend that the ATSB and CASA undertake a research program to ascertain whether it is feasible to fit a self-deploying ELT system to all aircraft engaged in carriage of fare-paying passengers, whether by RPT or charter operations, over water. If it is feasible, the use of such instruments in those circumstances should be mandatory.

I recommend that CASA amend the Civil Aviation Orders to make it mandatory that aircraft should carry lifejackets and/or a life-raft for the protection of fare-paying passengers whenever the aircraft is operating beyond the distance from which it could reach the shore with all engines inoperative.

CASA Response

Date Issued 16 March 2001

CASA accepts Recommendation R20000248 and is in the process of amending Civil Aviation Order 20.11 to comply.

Date Issued 16 March 2001

CASA is sympathetic to Recommendation R20000249 but wishes to consult more widely with the aviation community and other stakeholders including ATSB before taking further action.

Date Issued 22 March 2001

CASA also accepts Recommendation R20000250 and has published an article in the January/February aviation safety magazine Flight Safety Australia. Furthermore, CASA is considering further action on this matter and is consulting the aeroplane and engine manufacturers with a view to them improving their engine leaning procedures.

Date Issued 06 March 2002

CASA acknowledges the intention of the safety recommendation and advises that the Authority has taken significant steps to address this issue with the Federal Aviation Administration in relation to the, certification of the Piper aircraft and engine

In discussions with the Federal Aviation Administration (FAA) New York Aircraft Certification Office and the FAA Atlanta Aircraft Certification Office, CASA advised that one of the primary issues identified in the Whyalla accident was aggressive fuel leaning.

CASA advised the New York and Atlanta FAA Offices of the discrepancies identified between the Engine Operating Manual approved by the New York Office and the Aircraft Flight Manual approved by the Atlanta Office.

Following these discussions, the Atlanta Office has responded with advice that the FAA is of the opinion that fuel mixture leaning procedures were not a contributing factor in the events of May 2000. This response is not consistent with the findings of the ATSB in regards to the resulting combustion chamber deposits, pre ignition and detonation. CASA's actions in regards to this recommendation are ongoing, and discussions are being held with the engine manufacturer. CASA undertakes to advise the ATSB of the outcomes of these discussions as they progress.

In relation to the maintenance procedures for all high-powered piston engines fitted to Australian registered aircraft, CASA advises that action in relation to this matter is ongoing.

CASA intends to review current maintenance procedures applied to all high-powered piston engines fitted to Australian Registered aircraft to ensure compliance with manufacturer's published procedures, and in the opinion of the Authority, this action will provide timely notice of engine distress resulting from combustion chamber deposits.

In relation to the operating procedures for all high-powered piston engines fitted to Australian Registered aircraft, CASA advises that the Authority has notified all operators of Textron Lycoming and Teledyne Continental Motors piston engines aircraft of reports of crankshaft bearing failures.

../Cont. CASA Response

Date Issued 06 March 2002

> In response to this recommendation, I have been advised that a Civil Aviation Advisory Publication (CAAP) is currently being prepared to educate the aviation industry on procedures and techniques that may maximise the chances of survival of a ditching event.

Date Issued 21 November 2002

The authority has examined this matter, and for the reasons set out below, does not consider that the potential safety benefits of fitting devices that monitor and record aircraft fuel and engine system operation are sufficient to warrant the costs involved in their fitment. In addition CASA's view is that the decision to mandate the installation of this equipment should be based upon a larger international analysis supporting its fitment.

The ATSB has advised that the cost of these records can be modest, say $5,000 compared to approximately $100,000 for sophisticated recorders.

One such low cost recorder investigated by CASA was the Data Acquisition Alarm Monitor (DAAM), manufactured by Perkins Technologies of Mentone Victoria. Perkins Technologies advised that the cost of their recorder and sensor ranges from $10,000 for a single engine piston aircraft to $20,000 for a twin engine piston aircraft. The DAAM can accommodate up to eight individual sensors.

Perkins Technologies also advises that, for a turbine aircraft, an alarm only system would cost about $25,000. An alarm and trend monitoring system would cost about $35,000.

This cost does not include installation costs associated with the recorder and sensors. Perkins Technologies estimate that installation would add an additional $10,000.

The development of a Supplemental Type Certificate (STC) for one of these low cost recorders would take approximately 6-9 months for conformity, testing and approvals. It is estimated that this development would cost in the order of $5,000 to $10,000 for each aircraft type. These times and costs are indicative of modifications of this complexity.

These modifications are usually unique to each aircraft. As CASA has shown from its research, they are expensive to develop, and expensive to install and maintain.

Moreover, the benefits of low cost recorders are also limited because they:

> * Are not designed for aircraft use and therefore may emit undesirable radiation that can interfere with the aircraft electronics;
>
> * Are not crashworthy and may not survive a substantial crash and subsequent fire; and
>
> * Have limited capacity in terms of data channels which can be recorded, in that the data that may be important to an investigation cannot be recorded.

The following updates the actions previously advised in response to the recommendation:

Date Issued 01 March 2002

> On 19 December 2001, CASA advised that safety rules would be changed to require all aircraft carrying fare-paying passengers that take off or land over water to carry lifejackets or personal flotation devices.
>
> I have been advised that amendments have been prepared to Civil Aviation Order 20.11, to require all aircraft carrying fare-paying passengers that take-off or land over water to carry lifejackets or other approved flotation devices from 1 July 2002.
>
> .../cont--

--/cont...

With regards to the wider recommendation that CASA ensure that adequate emergency and life saving equipment for the protection of, fare-paying passengers be provided during over-water flights where an aircraft is operating beyond the distance from which it could reach the shore with all engines inoperative, on 21 December 2001, CASA release a Discussion Paper concerning the "Carriage of Life Jackets and other issues Related to the Operation of Twin Engine Aeroplanes".

The Discussion Paper seeks interested party comment on numerous issues including the probability of total engine failure, an event which influences a number of requirements other than those related to the carriage of life jackets.

Date Issued 10 February 2003.

In its response of 1 March 2002, the Authority advised that, on 21 December 2001, it had released a Discussion paper concerning the Carriage of Life Jackets and Other Issues Related to the Operation of Twin Engine Aeroplanes.

After consideration of the responses to that Discussion Paper, the Authority has decided not to amend the Civil Aviation Orders.

However, a number of issues were raised in the responses which the Authority has considered in the context of proposed CASR Part 121B. CASR Part 121B relates to Air Transport Operations - Small Aeroplanes. The Authority intends to release a Notice of Proposed Rule Making for this Part In March 2003 for industry comment.

Date Issued 19 November 2003.

In response to the first issue, the FAA has been advised of CASA's specific concern with the fuel mixture leaning procedures being different in the three Pilot Operating Handbooks (POH) for the PA31-350 Chieftain. Despite all serial numbers of PA31-350 aircraft having identical fuel systems, engines and performance, a fleet operator may operate a mix of aircraft serial number ranges, and yet, in ignorance, operate all aircraft to the one manual. CASA is writing a follow up letter to the FAA reiterating our concerns on this issue and CASA undertakes to advise the ATSB of the FAA response.

In response to the second issue, CASA's auditing of fleet operators now requires the approved Operating Procedures Manual be reviewed with consideration given to the operating procedure document detailed in the aircraft Type Certificate Data sheet (TCDS).

This review is carried out on each individual aircraft in the fleet by type, model and the aircraft's manufacturer's serial number, and CASA believes that this step will assist in ensuring that operators of fleets including more than one model of a particular aircraft type take account of different versions of operating manuals and handbooks.

Date Issued 23 July 2003.

I refer to Aviation Safety Recommendation R20010258 which arose from the accident of 31 May 2000 involving a Piper PA31-350 Chieftain aircraft, VH-MZK.

In its reply of 6 March 2002, the Authority advised that it would develop a Civil

Aviation Advisory Publication (CAAP) to educate the aviation industry on procedures and techniques that may maximise the chances of survival of a ditching event. CAAP 253-1(0), Ditching, was published in April 2003.

The CAAP can be found at http://www.casa.gov.au/download/CAAPs/ops/253-1.pdf

The Authority believes that the publication of the CAAP closes its actions on this Recommendation.

Date Issued 16 April 2003.

The Authority has carefully considered the comments of the Bureau and of Perkins Engineering.

The Authority acknowledges that it erred in its interpretation of the intent of the Recommendation and accepts the Bureau's view that the prime objective was to enhance real-time information about fuel and engine operation that would be available to flight crew.

In addition, the Authority acknowledges that the cost obtained for a single unit of the Data Acquisition Alarm Monitor, manufactured by Perkins Engineering, may not have been representative of the true cost of installing this equipment in a large number of aeroplanes. There may be consequent economies of scale

Not withstanding this, the Authority is not inclined to vary its position on the fitment of the mandatory devices for the following reasons:

- It would be an Australian unique requirement not required by any other major aviation nation nor required of aircraft manufacturers;
- We are unable to estimate the number of lives saved or injuries avoided through the use of these devices even using worldwide data. Whilst it is possible to determine the number of accidents, deaths and injuries caused in the past by fuel related accidents and engine failures, it is not possible to determine how many of those would have been avoided if fuel and engine monitoring systems had been installed;
- In addition, the true cost of the mandatory installation of aviation equipment will inevitably vary from one aircraft type to another, often depending on the number of such aircraft in Australia and any consequent economies of scale. The true cost also includes the economic impact of reduction or loss of air services which could occur as a result of escalating costs of uniquely Australian requirements. The purchase price of an item of aviation equipment and its installation is only one element of the true cost that needs to be estimated;
- Operators/owners are already able to fit these devices if they consider it worthwhile. The cheaper the cost of fitment the more likely operators/owners are to pursue the enhancement. For CASA to mandate the requirement, a substantial supporting case needs to be developed and implies either CASA knows something operators/owners don't or is substituting CASA's judgement for theirs.

In its letter of 21 November 2002, the Authority advised that it did not consider the potential safety benefits of fitting devices that monitor and record aircraft fuel and engine system operation are sufficient to warrant the costs involved in their fitment'. Whilst Perkins Engineering has advised the Bureau that their systems would not be as expensive as set out in the Authority's letter, this has not significantly affected the judgement we had formed.

On reflection the Authority's position might be better recorded as*: "CASA does not consider the potential safety benefits of fitting devices that monitor and record aircraft fuel and engine system operation are sufficient to warrant their fitment being made mandatory."* This construct does not imply any concerns with operators/owners voluntarily fitting this equipment.

9) EFATO: Hamilton Island, QLD; Piper PA-32-300, VH-MAR; 26 September 2002.

Safety Recommendations/Notices – (1) R20040039, (2) R20040040, (3) R20040041, (4) R20040042, (5) SAN20040043, (6) SAN20040044.

Issue Date: 18 March 2004.

http://www.atsb.gov.au/media/818626/aair200204328_001.pdf

http://www.atsb.gov.au/publications/recommendations/2004/r20040039.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040040.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040041.aspx

http://www.atsb.gov.au/publications/recommendations/2004/r20040042.aspx

http://www.atsb.gov.au/publications/recommendations/2004/san20040043.aspx

http://www.atsb.gov.au/publications/recommendations/2004/san20040044.aspx

As a result of the investigation, safety recommendations and notices were issued to the Civil Aviation Safety Authority:

> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority, in conjunction with the Department of Transport and Regional Services, establish the safety benefits of the introduction of a drug and alcohol testing program to the Australian aviation industry for safety-sensitive personnel. Where possible, this program should harmonise with existing and evolving national and international regulations.
>
> The Australian Transport Safety Bureau recommends that the Department of Transport and Regional Services, in conjunction with the Civil Aviation Safety Authority, establish the safety benefits of the introduction of a drug and alcohol testing program to the Australian aviation industry for safety-sensitive personnel. Where possible, this program should harmonise with existing and evolving national and international regulations.
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority revise the content of the pilot Day VFR Syllabi to include contemporary aviation medical knowledge regarding the effects of alcohol and illicit drugs use on human performance, and disseminate that information to qualified pilots via a comprehensive education program.
>
> The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review their Safety Trend Indicator process, including with a view to developing a methodology to assist in objectively assessing potential at-risk organisations. That should include formal 'triggers' that enable the consistent prediction of the requirement for additional surveillance until CASR Part 119 takes full effect.
>
> The ATSB suggests that CASA, through its industry publications, inform operators and pilots of Cherokee Six aircraft that a fuel selector control visual indication might not ensure selection of the intended fuel tank. In that case, actual fuel tank selection may be incorrect or partial, and result in the possibility for inconsistent engine fuel supply. Pilots should confirm correct visual fuel tank selection by detent feel.
>
> The ATSB suggests that CASA, through its industry publications, should inform operators that a pilot's induction program should reflect the risks inherent in the proposed operation, and take account of the pilot's competencies, recency and proficiency relative to those risks.

Coronial Analysis. Fatal accidents.

Coroner Barnes.

http://www.courts.qld.gov.au/__data/assets/pdf_file/0006/86640/cif-hamilton-isl-bowles-m-j-s-k-morris-a-legallo-ca-20060907.pdf

Relevant Quote: *"Despite the similarity of the purpose of the ATSB investigation and this coronial inquiry, the confidentiality provisions of the Air Navigation Act 1920 meant that not all of the information gathered by the ATSB was automatically available to this Court. For example, the ATSB investigators in their report and in evidence did not name the people they interviewed. As most of those potential witnesses were identified by the police officers who assisted in the initial stages of the investigation, those witnesses were able to be called to give evidence at the inquest. This is essential as, notwithstanding the technical expertise of the ATSB investigators, I am sure they accept that they do not have the forensic experience of the counsel who appeared at the inquest and they could not therefore so effectively examine those witnesses.*

The risk of evidence being lost as a result was exemplified in this case when it became apparent that the ATSB investigators had not obtained all relevant information from a woman who had socialised with the pilot on the night before the incident. In this case I was able to ameliorate the harm that could have caused by directing the disclosure of that witness' name and contact details under section to 19HC(8) of the Act. However, the relevant provisions have since been amended in a manner that would make that more difficult in cases where the ATSB investigation commenced after 1 July 2003.

The policy underpinning this cloak of confidentiality can be found in the 1944 Convention on International Civil Aviation (the Chicago Convention) which presumes that investigations which eschew the attribution of blame or the apportionment of liability and focus exclusively on prevention will be hindered if the information provided to the investigator is attributed to identified individuals. Little is likely to be achieved by a mere coroner taking issue with the assumptions upon which the regime is based. However, it is essential that coroners protect their inquiries from the negative impact this secrecy can have on their ability to examine the circumstances of a reportable death in an open and public process that provides the coroner and those most directly affected by the death with an opportunity to test the accounts of witnesses by cross examination.

There has been a tendency in some cases for QPS officers to assume that the ATSB investigators will obtain all of the information the coroner to whom the death has been reported will need. This can be a mistake. I readily acknowledge the special expertise of the ATSB to investigate aircraft incidents and greatly appreciate the technical specialists they willing make available to the court. I expect their investigators equally benefit from the forensic medicine evidence coroners, as a matter of course, provide to the Bureau. However, the differences between their procedures and those of a coroner make it essential that a coroner take early steps to protect sources of information that may otherwise be lost. The conducting of parallel investigations is undesirable but may be necessary in some cases." (NB Coroner Barnes shows he will not broker any adverse interference to his investigation from the ATSB.)

Coroner's Recommendations

> Fuel tank selector misalignment was identified as the most likely proximate cause of the incident investigated at this inquest and a factor in 35% of all reported safety incidents involving this aircraft type. I recommend that CASA reconsider whether it has adequately responded to this risk and whether a more definitive and targeted reaction is warranted.
>
> I recommend that CASA consider requiring AOC holders to demonstrate that their work practices will not unduly impinge on their chief pilot's ability to discharge the supervisory aspects of the position and that checking of this be made part of CASA's audit or surveillance processes.

(1) CASA Response

Date Issued 28 May 2004

CASA has reviewed the report and provides the following comments in response to Recommendation 20040039:

A review of the safety benefits of introducing a drug and alcohol testing programme for safety-sensitive personnel in the Australian aviation industry was announced by the Deputy Prime Minister and Minister for Transport and Regional Services, the Hon John Anderson MP on 18 March 2004.

The team reviewing the safety benefits has been drawn from the Department and CASA and reports regularly to a Steering Committee comprising the Department's Assistant Secretary, Aviation Operations, and CASA's Executive Manager, Corporate Affairs.

The terms of reference were included and can been viewed at the response from the Department of Transport and Regional Services (see response to R20040040).

(2) CASA/DOTAR Response

Date Issued 01 June 2004

The following response dated 25 May 2004 was received from the Department of Transport and Regional Services:

Thank you for your letter of 11 March 2004 enclosing a copy of Air Safety Investigation Report 200204328 on the accident involving a Piper PA-32-300 aircraft registered VH-MAR, which occurred at Hamilton Island Aerodrome, Queensland on 26 September 2002; and the Australian Transport Safety Bureau's (ATSB) research report discussion papers, 'Cannabis and its Effects on Pilot Performance and Flight Safety: A Review', and 'Alcohol and Human Performance from an Aviation Perspective: A Review'.

I note that you request a response within 60 days of your letter, and I regret the delay in my reply.

In relation to the investigation report, I refer to recommendation 20040040 on page 58. As you are aware, the Minister has tasked the Civil Aviation Safety Authority (CASA) and the Department to jointly review the possible safety benefits of the introduction of a drug and alcohol testing programme for the Australian aviation industry.

The terms of reference for this review have now been approved by the Minister and a copy is attached. Submissions have been invited from industry and the community in general by 30 June 2004, prior to a report being presented to the Minister by 30 September 2004.

On 18 March 2004, the Australian Transport Safety Bureau (ATSB) released its accident investigation report relating to a fatal accident on Hamilton Island in September 2002. A finding of the report was that the possible adverse effects on pilot performance of fatigue, recent cannabis use, and post-alcohol impairment could not be discounted. In the report, the ATSB made a number of recommendations, with recommendations 20040039 and 20040040 relating to the Department of Transport and Regional Services (the Department) and the Civil Aviation Safety Authority (CASA) and jointly establishing the safety benefits of the introduction of a drug and alcohol testing program to the Australian aviation industry for safety-sensitive personnel. It was stated that where possible, this programme should harmonise with existing and evolving national and international regulations.

On 18 March 2004, the Deputy Prime Minister and Minister for Transport and Regional Services, the Hon John Anderson MP (the Minister), subsequently released a Media Release announcing that he supported the ATSB recommendations and that he had asked the Department and CASA to jointly develop terms of reference for a review of this issue.

CASA Response

Date Issued 28 May 2004

The Day VFR (Aeroplane) Syllabus and the Day VFR (Helicopter) Syllabus have been enhanced to include contemporary aviation medical knowledge regarding the effects of alcohol and illicit drugs use on human performance.

The additional information, which is included in all new syllabi, can be purchased by industry personnel or can be accessed on the Authority's website. Please note however that the helicopter syllabus will be posted on the CASA website once the document has been reformatted and proof read.

The syllabi can be found at http://www.casa.gov.au/avreg/fcl_lic/index.htm.

Date Issued 28 May 2004

As noted in the Authority's response of 6 February 2004, the STI is used in conjunction with industry intelligence and other resources, as a management tool to assist Aviation Safety Compliance staff determine the planning and scope of surveillance activities.

However, the Bureau's report appears to inappropriately assume that the STI is a direct measure of a company's safety, rather than a means of prioritising resources to gain information by means of an on-site audit.

The STI does not record the presence of regulatory breaches or other hazards that must be corrected. Rather, it collects information on factors that suggest the greater likelihood of such hazards being present. For example, the fact that a company has recently made changes to its organisational structure does not in itself imply a decrease in safety. In fact some changes may have been implemented to correct previously identified deficiencies.

Nevertheless, the introduction of a new organisational structure does increase the likelihood that there could be disruptions to existing safety systems or see new, untested, systems introduced. For this reason, the STI is used not to identify specific problems but rather to prioritise companies for audits. In other words, companies that have relatively high STI scores should receive more frequent audits than other companies.

CASA is currently progressing with the implementation of Mark 2 of the STI. However, this remains but one tool within a suite of safety management strategies used by CASA.

In order to reduce the safety risks associated with flight operations and related ground operations, CASA is currently introducing a Safety Management Systems (SMS) approach for passenger carrying operations. The new regulations will mandate the implementation of a SMS and AOC holders will be transitioned to the new regulatory requirements through a case management process. Training sessions on SMS have already commenced and are attended by CASA officers and industry personnel.

In addition, CASA's new surveillance procedures direct inspectors to conduct safety auditing using the systems approach. The main areas of significant change initiated recently include: thorough pre-audit preparation and consideration given to safety intelligence, audit objectives and targeted scooping; recording and reporting of findings; and follow-up and planning of subsequent action.

The Authority's systems approach and application of risk management methods places greater emphasis on the notion of 'shared responsibility' between the regulator and operator for safe operations.

(**NB.** First difference of opinion on the definition of CASA STI system).

Cont: -CASA Response.

Date Issued 28 May 2004.

The issue will be addressed during the year with articles in Flight Safety Australia (FSA) regarding fuel management practices. However, the opportunity also exists for the ATSB to write something on this matter in their section of FSA.

Date Issued 28 May 2004.

Within Civil Aviation Order (CAO) 82.3 there is a "check-to-line" requirement for Regular Public Transport (RPT) operations. The Order requires that all tests and checks required by the operator's approved Training and Checking Manual, must have been completed before the pilot can operate as a member of the crew. Furthermore, a check pilot must certify the pilot as being competent.

An operators Training and Checking Manual is approved by CASA and therefore requires the Training and Checking organisation to reflect the risks inherent in the proposed operation, and take account of the pilot's competencies, recency and proficiency relative to those risks.

Charter and aerial work operators however, do not generally have a Training and Checking Organisation (although some are required to, under Civil Aviation Regulation 217). Therefore, there is no legislated pilot induction program. However, Civil Aviation Advisory Publication (CAAP) 215 does have a recommendation for inclusion of a section in Part A of the Operations Manual (section 2.4) titled "Induction and Training requirements (unless contained in part C)". Part C is the Training and Checking Manual.

CASA certainly encourages operators through our safety publications of the items noted in the recommendation. Importantly, CASA considers that this recommendation will be addressed with the introduction of Part 121 B, where training and checking will be a requirement for all transport operations.

Comment – April 2012.

CASR PART 119 and CASR PART 121B is still not available for use; therefore there is currently very little if any improved CASA oversight in the areas of Operational Category or Check and Training for this type of operator. This accident also highlighted several deficiencies in the CASA Auditing and surveillance of, what remains to date, Charter Operators.

Given the above factors, we believe that the reoccurrence of a similar accident scenario remains ‘high risk’.

10) Wire strike Accident: 3KM North of Bencubbin, WA; Bell 206B Helicopter, VH-PHG; 18 January 2001.

Safety Recommendations – (1) R20010202, (2) R20010203.

Issue Date: 26 February 2002

http://www.atsb.gov.au/publications/investigation_reports/2001/AAIR/aair200100252.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010202.aspx

http://www.atsb.gov.au/publications/recommendations/2001/r20010203.aspx

As a result of the investigation, safety recommendations were issued to the Civil Aviation Safety Authority:

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority review the need to develop and mandate competency standards for low-level aircraft operations, including power line inspection by helicopters.

The Australian Transport Safety Bureau recommends that the Civil Aviation Safety Authority consider instituting an education program for the industry highlighting the impending changes to operational standards to be introduced under Civil Aviation Safety Regulation (CASR) Part 61 and its associated elements, in order to give sufficient lead time for early adoption and implementation.

Deputy Coroner Evelyn Vicker.

Although Coroner Vicker had no direct recommendations to the CASA, she did highlight the difficulty Western Power Corporation and the operator had in defining aircrew as per the CASR.

Coroner Vicker strongly voiced her agreement with all the ATSB and Work safe WA recommendations.

CASA Response.

Date Issued 17 May 2002

CASA agrees with the above recommendations and reiterates our advice forwarded to the ATSB in our letter dated 29 January 2002 in response to the draft recommendations. A copy of our letter is enclosed.

I refer to your letter of 12 December 2001 enclosing a copy of draft Aviation Occurrence Brief 200100252, concerning an accident involving Bell 206 (Jetranger 111) helicopter VH-PGH. CASA has the following comments on the draft recommendations in the report;

Draft Recommendation A - CASA should develop and mandate Competency standards for low-level operations, including power line inspections by helicopters. CASA agrees and is currently developing appropriate standards. Draft Recommendation B

CASA should Institute an education program for industry highlighting impending changes to operational standards to be Introduced under CASR Part 61 and its associated elements, in order to give sufficient lead time for early adoption and implementation.

CASA agrees and this will form part of the implementation strategy of proposed Civil Aviation Safety Regulation (CASR) Part 61.

ATSB Interim Response

Date Issued 13 August 2002

In acknowledging CASA's efforts we must however reply to the statement referring to your letter of January 29 wherein CASA suggests the ATSB make recommendation to the industry to fit WSPS.

A telephone conference meeting on the 06 December 2001 was arranged between CASA in Canberra and the ATSB in Perth and Canberra at which this and other issues relating to

Bencubbin were discussed. During the telephone conference, CASA made the suggestion noted in the January 29 CASA letter.

It was noted that another helicopter accident investigation also addressed this issue and would make similar recommendation. R20010083 attached to Air Safety Occurrence Report 200100443. The safety action in that occurrence noted that, although CASA implemented training programs to educate the industry on the hazards associated with low level helicopter operations since the last recommendation on this subject, it is believed that WSPS kits may yet be beneficial in mitigating helicopter wire strike accidents.

http://www.atsb.gov.au/publications/investigation_reports/2001/aair/aair200100443.aspx

It further noted a previous recommendation on WSPS to CASA (then CAA) in R1 9950120.

The CAA response to recommendation R19950120 was:

"While WSPS may have been of benefit in this and similar accidents, the Authority believes that the fitment of WSPS should not be mandatory. However, the CAA is of the view that it should be strongly encouraged when suitable equipment is available.

The CAA in conjunction with BASI, is prepared to undertake an industry education program highlighting the hazards associated with low level helicopter operations as well as the advantages provided by the fitment of WSPS to appropriate helicopters."

In responding to the latest recommendation R20010083, while CASA *"was sympathetic to the ATSB position"* on this equipment, CASA's position had not changed and CASA would still not mandate WSPS fitment to helicopters capable of accepting it.

If CASA is now able to reconsider its position on this issue, ATSB is happy to support your initiative. ATSB recognises that CASA as the regulator is the body able to mandate the fitment of such safety equipment. If CASA does not feel able to take this action, it could perhaps consider encouraging the electricity and wider industry to adopt the full ATSB recommendations through its education programs.

The following updates the actions previously advised in response to the recommendations:

Date Issued: 08 September 2002

CASA will advise the ATSB of the final rules, as they impact on these Recommendations, developed under Civil Aviation Safety Regulation (CASR) Part 61.

To encourage the maximum participation of interested parties in the consultation process for Part 61, the Authority extended the period for receipt of comments to 31 August 2002 and looks forward to the consideration of wide ranging views.

The Authority also notes your comments in relation to Recommendation R20010083, a re-issue of R19950120. However, the Authority re-iterates its position, stated in our responses of 1 June 2001 and 18 April 2002, that it does not intend to mandate WSPS.

..../Cont---

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Notwithstanding this position, CASA has made known the benefits of WSPS and the dangers inherent in low-level operations. For example, an article on this subject was published in Flight Safety Australia, July-August 1999.

In the last paragraph of your letter, you suggest that CASA "consider encouraging the electricity and wider industry to adopt the full ATSB recommendations through its education programs".

Whilst the Authority recognises its broader role, for example the action set out in paragraph

It considers that it is the role of ATSB to bring its recommendations to the attention of the appropriate industry associations and for the relevant associations to take appropriate, responsible action.

RECOMMENDATIONS

1. Electricity suppliers and distributors provide markers on the wires for spur lines which stand out in a cross-country background. White paint at ground level on support poles is not satisfactory for the levels and heights at which helicopters may find themselves from time to time.

2. Helicopters required to fly at low levels, for whatever purpose, be fitted with approved Wire Strike Protection System (WSPS) kits.

3. Once there is agreement between WPC and their preferred operators in the area of fault finding inspections by use of helicopters there be continued training to ensure all personnel are familiar with the hazards of the workplace and appropriate risk hazard analysis and minimisation.

Comment – April 2012.

It is worth noting that recommendation 2 (WSPS systems) is still not mandated by CASA.

CASR Part 61 is still not available for use.

It is our opinion that essentially, the accident scenario potential to reoccur has not been eliminated and indeed there have been several other accidents of this type since.

This was highlighted by a helicopter wire strike accident near Parkes in 2006.

http://www.atsb.gov.au/media/1361545/aair200600523_001.pdf

The following Safety Recommendations came out of the Parkes accident;

http://www.atsb.gov.au/publications/recommendations/2007/r20070013.aspx

http://www.atsb.gov.au/publications/recommendations/2007/r20070014.aspx

In the Parkes accident the ATSB and Coroner both voiced their concerns about the length of time CASA was taking to implement Part 61 and Part 133.