STATE AIRCRAFT UNIT
VICTORIA

Annual Report 2007/08

31st August 2008

STATE AIRCRAFT UNIT CHARTER

The State Aircraft Unit (SAU) will be a centre of excellence within the Victorian Government and be responsible for the delivery of the aviation program for a number of government entities. The aviation program will be known as the Joint Agencies Aviation Program (JAAP) and will embrace the aircraft and associated aviation service requirements of the Department of Sustainability and Environment (DSE), Country Fire Authority (CFA) and a number of partner agencies.

Whilst safety will be the paramount consideration in all aircraft operations, services will be provided with due regard to value for money and minimised environmental impact.

Although the primary focus of the SAU will be on supporting fire suppression and management operations, the broader emergency management requirements of partner agencies, particularly those concerned with community safety, will also be serviced. The SAU will use its expertise and resources to support land management and other operational activities of partner agencies.

Governance of the SAU will be provided by the Aviation Management Committee. The SAU Manager will be accountable to the Committee for the administration and operation of the SAU and the establishment and provision of services under the JAAP. The Committee is currently an entity of DSE and CFA and these agencies will be obliged to provide funding, strategic direction and support to the SAU and the JAAP. The delivery of services by the SAU will be in accord with a Strategic Plan and annual Business Plan approved by the Committee.

The SAU will take such measures as to ensure the safety and quality of the aviation services provided, the establishment and monitoring of standards and procedures, the skills and expertise of relevant aviation personnel and the investigation and implementation of new and emerging technologies.

In delivering the aviation program the SAU will engage with personnel from partner organisations and work across a range of cultures and capabilities with both tolerance and respect. The program will be delivered in such a way that gives confidence to the aviation industry, strives to improve services and is compatible and complimentary to the operations of interstate agencies. The SAU will seek synergies with interstate, national and international agencies in areas of mutual interest, in a cooperative and constructive manner.

The SAU will be a desirable place to work that respects the ideas and opinions of the individual, fosters a strong spirit of team work and cooperation, draws strength through the collective skill and efforts of its members and cares for the ongoing well being and professional development of its employees.

2007/08 Highlights

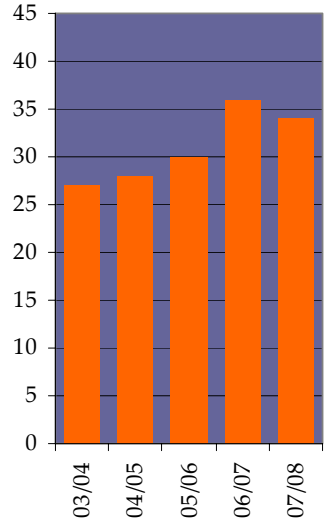
In response to an early prognosis that the 2007/08 fire season could reach extreme levels, the State Aircraft Unit commenced preparation for a premature and extended season of similar proportions to that experienced in 2006/07.

Fortunately, the risk abated as the season developed and the ultimate number of aircraft procured, dispatched and operated was slightly less than average.

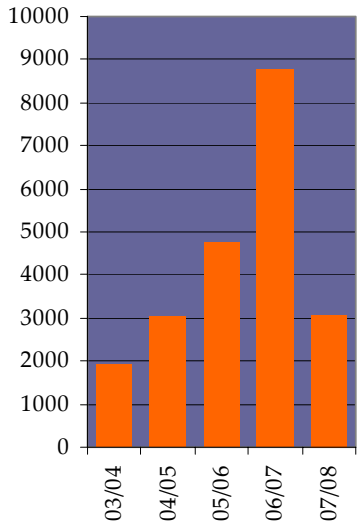
More than 690 fires were attended by the agencies and more than 32,300 hectares of land was burnt during 2007/08. This compares with the thirty year average of 655 fires attended and 171,191 hectares of land burnt each year.

* A total of 34 aircraft services were contracted which was 2 less than in 2006/07.
* All 31 aircraft under long-term contracts were activated.
* An additional 3 aircraft were contracted and activated for the season.
* An additional 189 aircraft were available through the "Call When Needed" register administered by the SAU.
* There were 852 dispatches recorded by the State Airdesk.
* A total of 3,070 hours of aircraft flight time was recorded by the State Airdesk which was less than average.
* During periods of peak demand up to 32 aircraft were simultaneously dispatched to incidents.
* The clients of the SAU continued to grow in number.
* A further 2 agency owned refuelling tankers were procured and constructed.
* The Aviation Management Committee was established to replace previous arrangements and provide on-going governance of the SAU.
* The recruitment of staff for the SAU was completed, in accord with the 2006 SAU Review.
* The development of a new generation of aviation policy documents, procedures and learning manuals was commenced.
* South Australia was provided with aircraft and aviation personnel in support of a major fire suppression operation on Kangaroo Island.

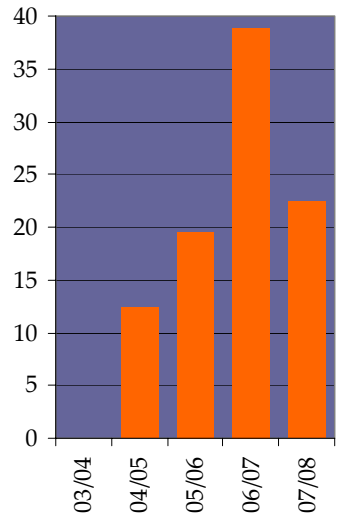
CONTRACT AIRCRAFT ACTIVATED



TOTAL HOURS FLOWN



TOTAL EXPENDITURE $M



A Message from the Manager, State Aircraft Unit

The State Aircraft Unit (SAU) coordinates, manages and delivers a wide range of aviation related services on behalf of the Department of Sustainability and Environment (DSE), Country Fire Authority (CFA) through the Joint Agencies Aviation Program (JAAP).

2007/08 has seen a much lower level of aircraft activity than that experienced in 2006/07. The number of hours flown by aircraft and incidents attended by aircraft were below long term averages. Expenditure on the aviation program in 2007/08 was in excess of $22 million which is less than 60% of that expended in 2006/07.

The quieter season provided an opportunity for the SAU to implement a number of recommendations made by the Aviation Management Committee (AMC) following an internal review of the SAU conducted in 2006/07, including:

* a new organisational structure based around the key functions of Aviation Services, Training and Safety, Business Management, Aviation Equipment, Innovation and Technical Systems;
* the development of a Charter that provides clarity as to where the SAU fits in relation to CFA, DSE and the other partner agencies as well as providing clarity on service provision and safety; and
* an increase in emphasis on safety in response to the expanding use of aircraft under the JAAP, the growing complexity of aircraft operations and the extended duration of incidents involving aircraft.

The SAU continued to support the National Aerial Firefighting Strategy and the Australasian Fire and Emergency Service Authorities Council (AFAC) – Wildfire Aviation Technical Group (WATG) through the provision of expert technical advice, procurement support and training material.

The span of the JAAP broadened further in 2007/08 through a Partnership Agreement with Hancock Plantation's (HVP) and the engagement of an additional light helicopter service on their behalf to increase the first attack fire suppression capability around the HVP plantation estate in Gippsland.

The JAAP will continue to expand in line with the growing use of aircraft for fire prevention and suppression, as will the responsibilities of the SAU. Critical to success will be the ability of the SAU to coordinate the efforts of multiple agencies and strategic partners and to develop a single aviation system for emergency service and land management agencies of Victoria. The challenge will be to develop multi agency teams, multi agency regional engagement and clearly developed service agreements with partners.

To secure the future of the aviation program the SAU is seeking additional, recurrent funding through the Bushfire Strategy currently being prepared by the agencies. If successful the additional funding for aircraft will support aircraft safety and enhanced prescribed burning and initial attack strategies.

In closing, I wish to thank the on-going effort and support of the SAU staff and of the wide range of aviation professionals including agency personnel, pilots, engineers and others involved in the provision of a safe and efficient aviation service through the JAAP.

Nick Ryan

Contents

Service Delivery

Readiness and Response

Standards and Procedures

The structure and content review of the Air Operations Manual resulted in the development of a document hierarchy for the SAU. During the year the SAU commenced the initial development of aviation policy documentation, developed 30 draft SAU procedures for internal review, and produced learning manuals for a number of accredited aviation roles.

Seven SAU Briefing Notes were promulgated to agency staff covering the following topics:

* Establishing floating collar / rigid tanks for helicopter filling operations
* Provision of welfare
* Type 1 helicopter bucket operations
* Rappel rope report
* Install agency equipment
* Ad-hoc aircraft radio maintenance
* Aviation refuelling tanker driver requirements.

The SAU continued their strong involvement in the Australasian Fire Authorities Council Aviation TRK group providing input into national position papers.

Advice

Specialist advice and support was given to improving the management of aircraft on a national basis, through NAFC.

New information was distributed widely using the SAU website, which continues to develop and expand.

Parks Victoria (PV) had a number of large operations involving aircraft sling loading equipment and construction materials to sites in the Grampians and Alpine area, as part of the Bushfire Recovery works still being undertaken from the 2006/07 season.

This required a great amount of planning by PV and the SAU to ensure these operations proceeded safely and efficiently.

The SAU also organised a workshop with PV staff to advise of the policy and procedures that their organisation has in place when using aircraft.

The Department of Primary Industries (DPI) requested the SAU to provide expert advice and support them in the procurement and management of aviation services for locust operations, which will continue into the 2008/09 year.

Support to Aircraft Operators

One annual pre-season pilot briefing was delivered to the contract aircraft and Call When Needed Register companies, reinforcing operational and safety procedures and disseminating updated aviation management information.

Thirteen aircraft companies supplied State and National Fleet aircraft services, through the SAU in 2007/08.

Development began on the implementation of the online Call When Needed Register, which the SAU predicts will make access for operators easier and the submission of details more streamlined. It is proposed that the online system will undergo targeted trialling during 2008/09 to gather feedback from operators, with full access to follow.

Service Delivery

Procurement

In response to an early prognosis that the 2007/08 fire season could reach extreme levels, the SAU commenced preparation for a premature and extended season of similar proportions to that experienced in 2006/07.

Fortunately, the risk abated as the season progressed and the ultimate number of aircraft procured, dispatched and operated was slightly less than average.

In 2007/08 all 31 aircraft under long-term contracts were activated. This was one less than 2006/07, as two Type 2 firebombing helicopters were replaced by a single, larger capacity Type 1 firebombing helicopter (see Appendix 1 for details).

The three additional aircraft contracted were:

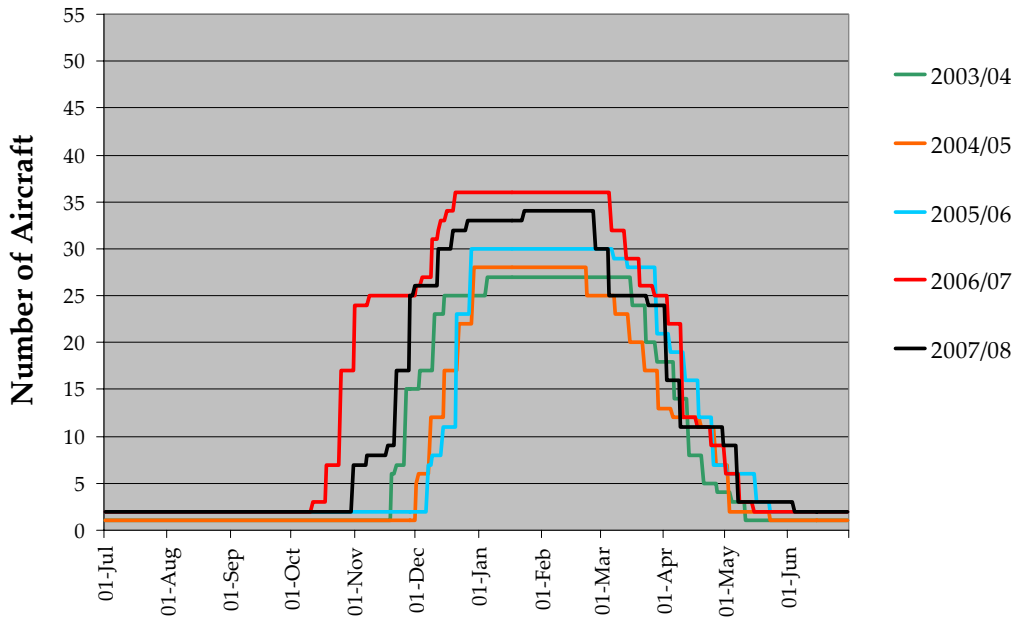
* 1x Type 1 helicopter service (via NAFC) – an Erickson Aircrane S64E (Essendon) with a 7,500lt bellytank;
* 1x Type 3 helicopter service (via NAFC) – a Bell 206L LongRanger (Essendon) engaged as an air attack platform for the S64E based at Essendon; and
* 1x Type 3 helicopter service – a Eurocopter AS350BA equipped with a 680lt capacity underslung firebombing bucket. This service was contracted on behalf of Hancock Victorian Plantations Pty. Ltd. (HVP) for the priority protection of the HVP Gippsland plantation estate.

CFA and DSE agreed to delay the incremental commencement of aircraft service periods until November and early December 2007, as the prognosis for the fire season moderated. See Appendix 2 for details of the 2007/08 Service Periods for individual contract aircraft.

Procurement and construction of two 6,000-litre Jet A1 refuelling tankers was completed this year. Victoria now has five tankers positioned in regional locations to support aircraft operations.

The Call When Needed (CWN) Register contained 94 rotary wing aircraft and 95 fixed wing aircraft, during the 2007/08 year.

CONTRACT AIRCRAFT AVAILABILITY
Does not include "Call When Needed" or regional aircraft

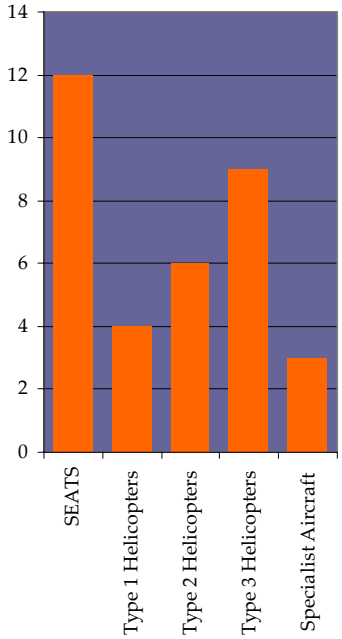


State Airdesk

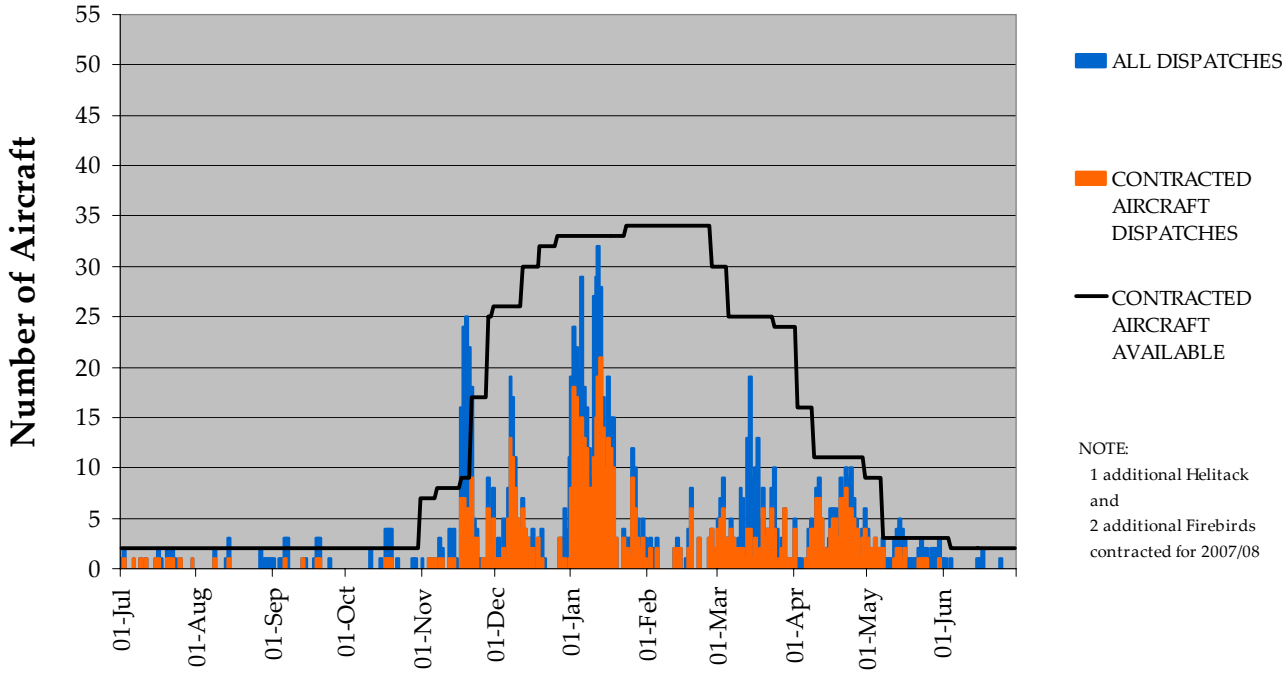
The State Airdesk recorded 852 dispatches to 30 June 2008 inclusive, approximately 60% of last years total. This included fire and other emergency incidents, prescribed burning operations, and other land management activities such as forest regeneration seeding and aerial animal surveys. Notification by CFA and DSE Regions of deployments of light fixed wing reconnaissance and observation aircraft were also recorded and entered into the State Airdesk dispatch system.

Nine metropolitan and regionally based CFA and DSE/PV staff were trained and mentored on the State Airdesk during 2007/08. This has substantially boosted the pool of staff able to carry out the roles of Duty Aircraft Officer and State Aircraft Coordinator.

AIRCRAFT CONTRACTS ACTIVATED IN 2007/08



AIRCRAFT DISPATCHES IN 2007/08
Does not include "Firespotters" or all other regional aircraft



NOTE:
1 additional Helitack and
2 additional Firebirds contracted for 2007/08

Service Delivery

Operations Overview

In 2007/08 the total aircraft flying time recorded by the State Airdesk was 3,071 hours. This compares to the average over the past ten years of 3,566 hours. Flights arranged directly by regions for training and other operations are in addition to these times.

The aircraft flying times during 2007/08 for Victoria, excluding "Firespotters" and some regional aircraft, is indicated in the table below.

Detailed aircraft usage figures are found in Appendix 3.

The following fires were the incidents during 2007/08 with the highest recorded aircraft usage:

* DSE Blue Rag 118 hrs
* DSE Mt Elliot Ridge 85 hrs
* DSE Snake Island 83 hrs
* DSE Lightning Track 82 hrs
* DSE Mt Victoria 81 hrs
* DSE Mountain Creek 70 hrs
* DSE Little Desert – Salt Lake 69 hrs
* CFA Elaine 62 hrs

Helitack 348, a Sikorsky S61, inserting a floating collar tank at Mt Victoria, January 2008

AGENCY FLYING TIMES					
Agency & Operation	**2007/08**	**2006/07**	**2005/06**	**2004/05**	**2003/04**
CFA – fire	158	736	609	187	207
CFA – training	15	3	1	5	23
Agreed strategic positioning (shared equally by CFA and DSE)	60	116	74	27	19
DSE – fire	1,401	6,748	2,516	1,717	968
DSE - training	209	198	192	245	179
DSE – burning & seeding / other works	608	546	375	656	550
PV – other works	212	109	0	0	0
DPI – locusts	0	0	812	0	0
VicForests – burning & seeding	256	198	137	168	0
SAU projects and programs (non-operational)	46	72	49	0	0
Victoria Total hours	**2,965**	**8,726**	**4,765**	**3,005**	**1946**

Does not include all flying times for aircraft arranged directly by regional staff for training and other operations. Does not include any flying time charged to other agencies.

Service Delivery

Interstate Deployments

In December 2007, the Country Fire Service of South Australia requested support from Victoria to assist with the Kangaroo Island incident. The State Airdesk dispatched ***Firescan 300*** and ***Helitack 341***, as well as organising passenger flights for IMT and ground crews. The SAU also provided a staff member to assist in the coordination centre based in Adelaide. This incident was one of the lengthiest fires that South Australia had had to manage for some years.

Airborne Infra Red Services

There was a significant decrease in the usage of the infra red linescanning aircraft compared with the 2006/07 year. ***Firescan 300*** recorded 21 separate dispatches, including operations for South Australia and the Australian Capital Territory (ACT). The second aircraft was not required for scanning purposes, however was engaged for numerous passenger transport flights throughout the year.

Of significance was the use of this aircraft to scan areas treated in the prescribed burning program. The multispectral capability of the linescanning equipment had not been used this extensively before this year, and was utilised in both the pre and post burn phases of the program to map fire severity. Burn sites across Victoria and the ACT were scanned using this technology.

This year the Manager, SAU visited AusSAR (Australian Search and Rescue) in Canberra to discuss the possible application of their Dornier aircraft for infra red scanning in Victoria, as a backup to the existing service..

Land Management Operations

In early 2008, Parks Victoria conducted an intensive aircraft operation at Mt William in the Grampians. PV had a requirement to replace elevated walking tracks on the Mt William plateau damaged during the wildfire of 2006.

The operation involved the use of a dedicated Type 2 helicopter to sling load in approximately 40 tonnes of equipment along the length of the track. The sling operations took 3 days and a total of 26 hours of flying was involved.

In addition, PV contracted a Type 3 helicopter to fly the works crew into the plateau on a daily basis. The helicopter was also available to extract the works crew in case of inclement weather or injury.

The Type 3 helicopter was contracted for 6 weeks and 58 hours of flying was conducted.

Service Delivery

Programs

Rappel and Hover Exit Programs

The SAU manages the rappel and hover exit programs on behalf of DSE.

During the 2007/08 season there were 27 rappel deployments of crews within Victoria with an intense period during January when 22 rappel operations were conducted.

Interestingly there were no rappel operations conducted after the 27th January2008.

Nearly 3,100 rappel descents were conducted for the season, compared to 3,800 for last season. These totals include initial tower and helicopter training, currency and fire operations.

A trial was conducted into the feasibility of using the Sikorsky S61 helicopter based at Mansfield for rappel operations. Trials were conducted in the open and in closed canopy over 2 days. A report was prepared for the Manager SAU.

Rappel trials using the Sikorsky S61 aircraft based at Mansfield

National Aerial Firefighting Program

In the 2007/08 year, the Commonwealth Government, through NAFC, allocated $2,669,000 to Victoria for the procurement of aircraft resources. The Commonwealth funds went towards the standing charges of five aircraft up to a maximum of 50% of the total cost, with the State providing the additional standing costs and all operating costs.

The SAU continued to provide support to the Victorian Director on the NAFC Board and Victorian Delegate.

The SAU also provide support to the national program, by compiling the national call sign register of firefighting aircraft on behalf of the member states and territories. This register is continually updated and submitted to Airservices Australia (ASA).

Service Delivery

SAU Training Program

In 2007/08 the SAU training program delivered a wide range of aviation related courses to a variety of participants at Bendigo, Mangalore Airport, Mt Buller, Point Cook Airfield, Victoria Valley, Kinglake, Halls Gap and the DSE North Altona depot.

Aerial driptorch operators and support crews were accredited via on-the-job assessments.

The SAU facilitated "Working in the Wire Environment" and training for CFA and DSE/DPI/PV operational flight personnel, using external trainers.

Annual training courses for new Aircraft Officers and Air Attack Supervisors were held, as well as reaccreditation of personnel for these roles. Numbers of personnel accredited statewide for these, and the Air Operations Manager role, are:

* Air Operations Manager 10
* Aircraft Officer 48
* Air Attack Supervisor 59

Helicopter Underwater Escape Training was conducted for DSE rappel dispatchers at West Sale airport.

The list of courses delivered and facilitated by the SAU during 2007/08 on behalf of CFA and DSE is contained in Appendix 4.

Organisations represented at the training courses were:

* CFA
* DSE
* Department of Primary Industries, Victoria
* Parks Victoria
* VicForests
* New Zealand Rural Fire Authority
* Country Fire Service, South Australia
* NSW National Parks & Wildlife Service

Pre-season agency briefings were again held prior to the end of October in regional and metropolitan locations. This continued the SAU's active delivery of information and support to agency staff that may use aircraft in their operations.

State Fleet and regionally based light fixed wing aircraft, were involved in regional recurrency days held this year at the following locations:

* Anglesea
* Bacchus Marsh
* Bendigo
* Colac
* Edenhope
* Geelong
* Maryborough
* Stawell

The CFA and DSE at Ballarat organised a multi-agency familiarisation day for staff and volunteers, providing an excellent opportunity for them to look at the aircraft close up and speak with the flight crew's. This day assisted in the greater understanding between the aerial and ground based roles, improving the lines of communication and teamwork required in incident management.

Support to Agency Training Programs

The SAU contributed to a variety of CFA and DSE training and accreditation courses, delivering the aviation related modules.

The Aviation Management Committee approved a review of the Aviation Training Program, planned to be conducted in a two stage process. Work on the first stage commenced with wide stakeholder consultation into the needs and priorities of agencies, leading to the drafting of recommendations. It is envisaged that this review will be completed during the 2008/09 year and will aid in the development of a 5 year SAU Strategic Training Plan.

Service Delivery

Partnerships

Stakeholders

The many and varied stakeholders that the SAU engages with continues to expand every year. Of particular note this year was the support provided to Hancock Victorian Plantations Pty. Ltd. in the procurement of a Type 3 firebombing helicopter for priority protection of their plantation estate in Gippsland. SAU staff organised the engagement of this service and prepared a new service agreement between DSE and HVP.

Opportunities to work with new stakeholders such as HVP, will continue to be given careful thought by the SAU and discussed with the Aviation Management Committee.

Interstate and International Relationships

The SAU continued to foster our strong working relationships with international colleagues in both the aviation industry and emergency and land management agencies. These networks have facilitated the sharing of information regarding emerging issues, new advancements in aircraft technology and improved training and management techniques.

One of the five 6,000lt Jet A1 bulk refuelling tankers located across the state

Continuous Performance Improvement

Audits

The SAU once again completed an extensive audit process during 2007/08, through the engagement of specialist external organisations and the assistance of a post graduate student.

All contract aircraft services underwent a compliance audit, with any issues raised either being resolved on the spot or during the availability period. Any major concerns with compliance against the contract specifications were also followed up in the post season contractor debriefs.

Two company audits were completed on companies undergoing Contract Service reassignment. These audits thoroughly examine the aircraft company as an organisation, particularly in regards to the operational and financial structure, and ability to support the State's service requirements.

Several Call When Needed aircraft were audited this year, with the SAU planning on significantly extending this section of the audit program in future years.

One of the priority tasks that the new Audit, Analysis & Systems Review Officer had on commencement, was the review and implementation of an updated Audit Strategy. This strategy will result in a more rigorous audit process and provide greater service delivery to our stakeholders.

Aviation Occurrences and Aviation Related Fireline Occurrences

The overall number of reported occurrences this season has reduced from the previous year. This may be a reflection of the reduction in the number of hours flown over the past year, compared to a significant 2006/07 fire season. Emphasis on the requirement for mandatory reporting has continued to increase formal notification of occurrences, continuing a positive trend which allows collection of information to identify potential risks in aviation operations.

A total of 25 occurrences were reported by the end of the season. All reports have been assessed and initial actions undertaken, however investigations have commenced on a small number only. Summaries of two of these investigations and initial trends that have been identified are detailed in the following pages.

Of note is the increasing reliance on aircraft in land management operations and achieving prescribed burning treated areas. Vigilance in maintaining safe operations should not be compromised by complacency and a focus on achieving these outcomes.

Aviation Occurrences in 2007/08

Engine Failure during Training
Mangalore, Victoria Australia
5th October 2007

During training operations on Friday 5th October 2007, Birddog 367 a Cessna 337 (VH-AEV) was conducting flights to train and reaccredit Air Attack Supervisors in the Greytown area, approximately 10nm from Mangalore. At approximately 1600 during the last of a number of flights for the day the rear engine of the aircraft failed.

The aircraft was able to return to Mangalore and landed without further incident. On ground inspection revealed significant oil on the rear of the aircraft. Engineers established, after inspection, a failure of a recently fitted oil filter. The occurrence is currently subject to an ongoing investigation.

Blade Strike - Trees
Lysterfield, Victoria Australia
8th January 2008

At approximately 1845 on the 8th January 2008 Helitack 331 (C-FKGT) a Bell 212 helicopter was undertaking a flight to test the operation of the hover fill system. Having repaired a hydraulic line failure from the previous day the aircraft was flown to a nearby site to test the newly installed line.

Whilst concentrating on the test and experiencing difficulty with vision from the low angle of the sun and water spray on the screen, the aircraft moved sideways and impacted the main rotor blades with trees beside the water source.

The main rotor blades were subsequently found damaged requiring replacement, together with full inspection of the mast assembly and gearbox of the aircraft.

The occurrence is currently subject to an ongoing investigation.

Aviation Related Fireline Occurrences in 2007/08

Airspace management

Review of the reported incidents shows a marked improvement from the previous year of aircraft experiencing incursions in their operational airspace. Only two reports were submitted indicating unknown aircraft had entered into areas of active fire bombing operations.

Sling Loading Operations

There is an increasing reliance on helicopters to undertake land management activities throughout the state. Crew transport and sling loading of equipment and materials allow access into remote areas. Two sling loads operations were however compromised resulting in the loads being released enroute. In a separate incident, crews using a helicopter for transport exited the aircraft uphill under moving rotors.

All three incidents have been investigated.

Fireline Occurrences

Two reports have been received where vehicles and fire fighters were caught in aircraft drop zones. On both occasions vehicles were coated in retardant. Fireline awareness when working in the vicinity of aircraft should be emphasised during briefing sessions and training.

Burning Operations

With the increasing emphasis on fuel reduction burning there has been an increased use of helicopters to achieve targets. With several of the reported incidents, there appears to be a trend toward outcomes within specific timeframes which could create a situation where safety is compromised.

Continuous Performance Improvement

Reports on Services and Operations

AAS Reports

Collection of the Air Attack Supervisor reports continued throughout the 2007/08 fire season with a total of 76 received. These reports added to the 488 received over previous seasons, making a total of 564 reports submitted over a 5 year period. Analysis of this seasons' reports are yet to be undertaken, however a post graduate student employed in the SAU completed a paper on the program which should be available in late 2008.

The report examines the performance and effectiveness of the program, and how it contributes to the continuous improvement of decision making, policies and procedures in aerial fire fighting operations.

It also examined the data collected over the first 4 years of the program and analysed the fields in terms of their objectives. This process has identified several areas where changes could be made to the AAS report form and a review is being considered.

Performance Management Program (AIRCHECK)

In 2007/08 28 contract services achieved an average of 91.30% of the performance requirements under AIRCHECK. This was a slight reduction compared with previous years, and attributable to several aircraft being unavailable for significant amounts of time throughout the availability periods, and agency staff increasing their attention to detail on the service delivered.

Post Season Contractor Debriefs

The SAU conducted a total of 13 contract aircraft operator debriefs at the conclusion of the fire season, including the nationally supplied aircraft. Various issues regarding service delivery and operations were raised for attention, which the SAU will address prior to the 2008/09 fire season.

Bushfire CRC

Input provided to the Bushfire CRC was much reduced this year, due to the lower level of activity experienced in Victoria. As has occurred in previous years, the SAU were happy to schedule time in the program of pre-season briefings for agency personnel to hear about progress relating to the aerial operations project being conducted by Bushfire CRC researchers.

The SAU was also involved in the Project Fuse trials at Ngarkat South Australia on 4-5 March 2008. These trials comprehensively covered a wide range of research areas, including the effectiveness of suppressants and retardants on mallee fuel, and for the first time in Australia, a trial of gel based suppressant was carried out.

Research on Emerging Technologies

Aircraft Delivery Systems Program

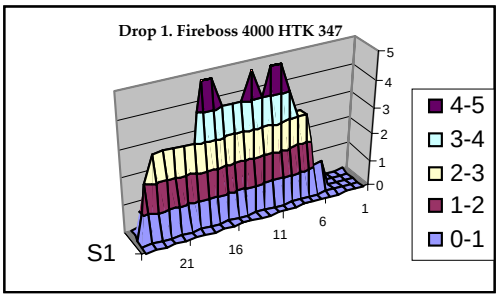
Evaluation of Coulson Fireboss 4000

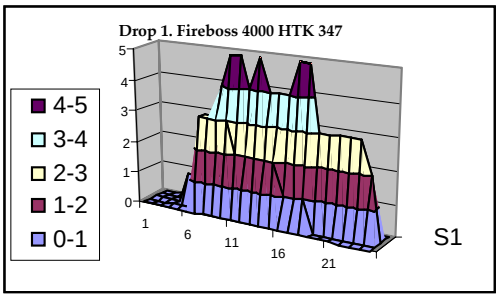
A new underbelly fire bombing tank system was developed in 2006 by a local Australian company for use under a Type 3 helicopter. The company developed a prototype and was having difficulty with some design and operating features and requested the assistance of the SAU. As a result of the assessment and subsequent recommendations the tank was developed further and used operationally and successfully during the Great Alpine Fire.

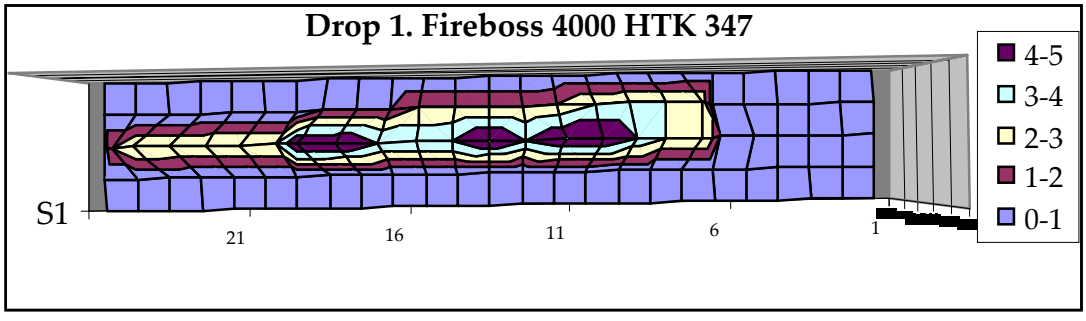
The SAU explored the opportunity to build a larger version of the tank to be fitted under the Sikorsky S61. As a result a tank was developed by Coulson Aircrane from the design that originated from the Australian product. The tank has flexible walls, which solves many of the issues with achieving good quality drops from tanks fitted to aircraft with relatively low ground clearance.

Considerable time has been spent verifying the data collection process and the information collected, as well as the extraction of raw video and production of technical and training videos for use in Victoria and internationally.

The initial results have been significant in relation to the dimensions of the drops especially the consistent and uniform coverage of the footprint on the ground. A key factor to note is that there has been no requirement to modify the delivery system to enhance the drop characteristics and resultant footprint. Previous assessments conducted by the SAU have identified deficiencies which have required modifications.







Firebombing Aircraft

Evaluation of the Martin Mars Firebomber

For the first time a formal joint evaluation program was conducted by the United States Forest Service (USFS), Ministry of Forests British Columbia (MofBC) and the SAU during May and June 2007, to asses the drop performance of the Martin Mars water scooping firebomber.

The drop test was conducted at Port Alberni in British Columbia. The tests were conducted using both water and a water enhancing gel.

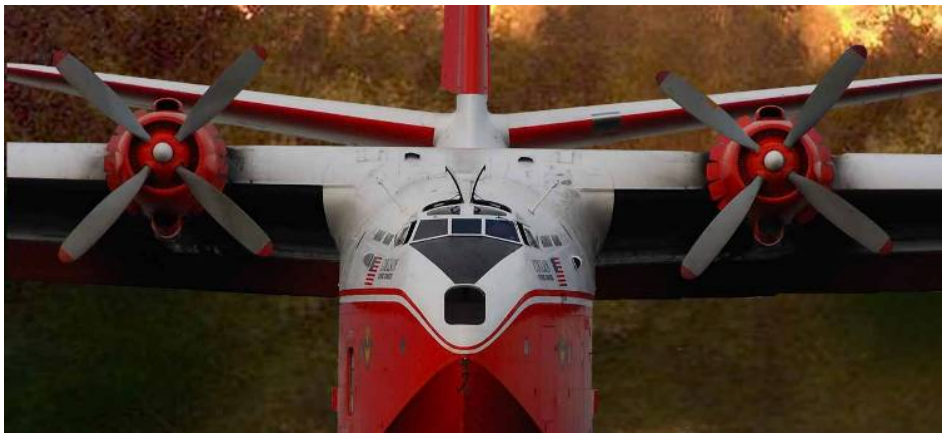
The assessment criteria was designed and conducted by the MofBC and the SAU and the data collection and analysis was conducted by the USFS and the SAU.

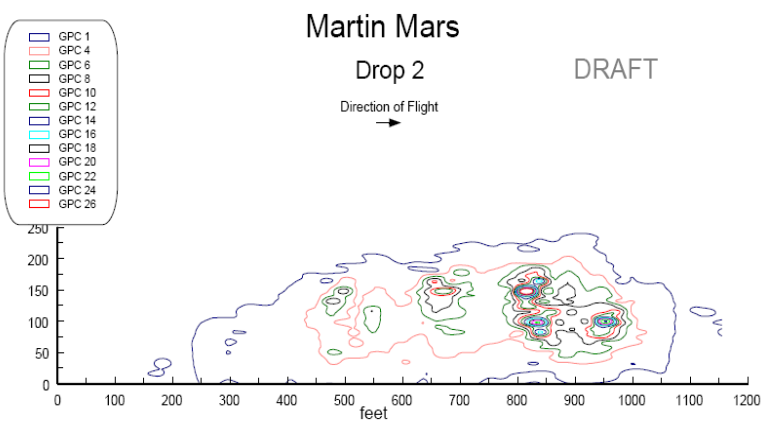
The program was confirmed by the USFS and the MofBC as highly successful for the operation and performance of the aircraft and system. and also for the partnership and reference group which has been formed with the various international agency members who participated.

As a result of the program the Martin Mars successfully secured a seasonal Contract with the USFS based in California USA.

Members of the delivery system assessment group are currently developing a plan which will see the sharing of information and the scheduling of assessments in accordance with the availability of aircraft and their systems.

The next planned assessment is in Victoria and will based around further investigation of the Fireboss 4000 and several SEATs.





Application of New and Improved Technologies

Evaluation of DC10 Air tanker

The SAU, on behalf of NAFC, undertook an operational investigation of a high capacity air tanker based in California, USA.

The aircraft investigated was "Tanker 910" which is the only wide-body jet air tanker currently in fire service. The aircraft is a converted McDonnell Douglas DC-10 aircraft that can carry up to 45,600 litres of water or fire retardant in an exterior belly-mounted tank.

Particular attention during the investigation was given to:

* costs
* safety of operations
* aircraft performance
* logistical support
* supporting infrastructure
* fuelling requirements
* air attack supervision and/or lead plane requirements
* water requirements
* retardant production
* drop options
* drop patterns
* direct attack vs indirect attack

The investigation has provided a good understanding of the availability, effectiveness, efficiency and safety of the service and the potential application of such a service in Australia.

Application of New and Improved Technologies

Development and Maintenance

The following are several projects and items of equipment that have been managed and/or developed by the Aviation Equipment Group this year:

New Generation Aerial Incendiary Machines

The five aerial incendiary machines were used continuously throughout the prescribed burning program and all reportedly worked very well. Minor maintenance and equipment cleaning was conducted at the end of the program, ensuring that the machines will be ready for the 2008/09 fire season and planned burns.

Communications Facilities

Minor works were carried out on two mobile communications vans to bring them into production. These vans are located at Ballarat and the DSE Equipment Development Centre at North Altona.

Firebombing Airbase Upgrades

General upgrades continued at Casterton, Latrobe Valley and Walshes airstrip at Mansfield, whilst upgrades to the generators at Casterton, Yanakie, Bairnsdale and Avondale were carried out. Plans were developed for Mt Hotham to bring it up to a fully operational airbase and these are to be implemented in 2008/09.

Infra Red Downlinking System

Work commenced on upgrading the 12 computers used across the state in the gathering the infra red linescanning data. As part of the upgrade, a review of the downlinking sites began to assess the adequacy of coverage across the network.

Portable Realtime Automated Tracking System (RATS)

The SAU purchased several portable RATS units for installation into targeted Call When Needed aircraft, creating another method to safely track aircraft. Interfacing between these units and DSE's intranet was trialled with success, prompting work to enhance the system prior to the 2008/09 season.

SAU Business Management

Governance

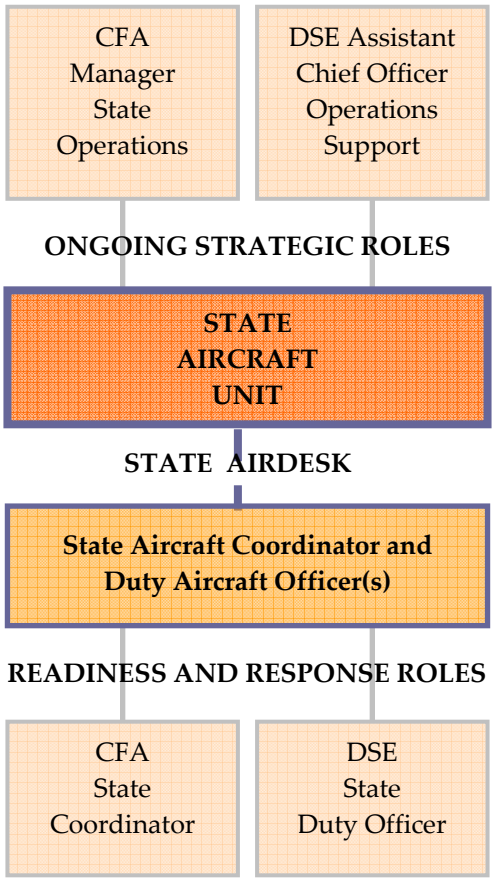
The SAU is governed by the **Aviation Management Committee**, comprising

* DSE Chief Officer, Fire & Emergency Management (Chair);
* CFA Chief Officer;
* CFA Manager State Operations;
* DSE Assistant Chief Officer, Operations Support; and
* Manager, State Aircraft Unit.

As a result of the SAU Review conducted in 2006, work towards a clearer governing framework commenced in 2007/08. The SAU is assisting in the development of these documents.

Functional Structure

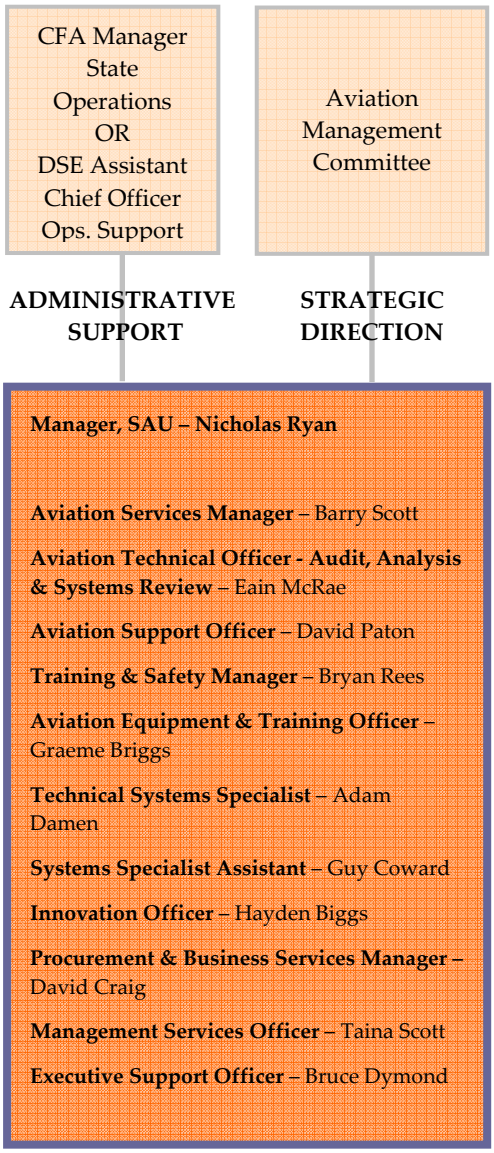
The SAU reports to the CFA Chief Officer and DSE Chief Officer, Fire and Emergency Management. The SAU is responsible for the operation of the State Airdesk, the aircraft fleet coordination and dispatch function of the unit.



Operational Structure

During 2007/08 the SAU went through an extensive recruitment process, to meet recommendations from the SAU Review 2006.

A clarification of roles and responsibilities given the greater number of staff, has provided a more solid and workable organisational structure.



SAU Business Management

Bushfire Strategy

Considerable time and effort was spent preparing detailed plans and funding bids in relation to aviation services and associated supporting infrastructure.

Bids for recurrent funding for additional aircraft and infrastructure are being prepared under the Bushfire Strategy. If successful the additional funding will support improved aircraft safety, enhance prescribed burning and initial attack strategies, expand the rappel program and increase high capacity aircraft availability for asset protection.

Bids for capital funding for additional infrastructure, systems and equipment are being prepared under the DSE Asset Investment Program Multi-Year Strategy. If successful the funds will underwrite capital works designed to improve safety and response through the enhancement and expansion of the supporting infrastructure associated with aircraft operations.

Marketing

The latest version of the SAU aircraft poster was distributed throughout our stakeholders, assisting in the identification of the aircraft Victoria use. Feedback the SAU has received is that this poster has helped raise the awareness of agency staff, to a resource that is often seen from ground but not up close.

SAU Business Management

Financial Summary

This financial summary covers the SAU as an entity of CFA and DSE.

	2007/08 $'000	2006/07 $'000	2005/06 $'000
Revenue			
Revenue from Commonwealth Government	2,669	1,880	1,880
Recurrent Revenue from State Government	8,540	6,751	6,637
Revenue from other parties (Melbourne Water, VicForests, Parks Victoria)	666	770	512
Additional Revenue from State Government	10,599	29,501	11,960
Total funding	22,474	38,902	20,989
Expenditure			
Aircraft Standing Charges			
CFA	(6,103)	(6,468)	(3,569)
DSE	(8,354)	(9,006)	(6,999)
DPI	(1)	(-)	(92)
PV	(102)	(10)	(17)
VF	(32)	(54)	(30)
Aircraft Operating Charges			
CFA	(759)	(3,450)	(1,834)
DSE	(4,237)	(12,489)	(4,591)
DPI	(5)	(76)	(1,181)
PV	(310)	(111)	(110)
VF	(123)	(199)	(156)
SAU Business and State Airdesk Operating Charges	(1,763)	(1,518)	(1,034)
Other Agency Operating Charges*	(685)	(5,521)	(1,376)
Total expenditure	(22,474)	(38,902)	(20,989)

* includes aviation fuel, fuel truck hire, retardant and foam

Appendix 1: State Fleet and National Fleet aircraft for 2007/08

Aircraft Callsign	Type	Nominated Base	Firebombing system (Full capacity)
Type 1 Helicopters			
Helitack 341 *	Aircrane S64F	Essendon	9500 litre Belly Tank
Helitack 342 *	Aircrane S64E	Essendon	7500 litre Belly Tank
Helitack 347 *	Sikorsky 61N	Bacchus Marsh	3000 litre Bucket
Helitack 348 *	Sikorsky 61N	Mansfield	3000 litre Bucket
Type 2 & 3 Firebombing Helicopters			
Helitack 331	Bell 412	Moorabbin	1400 litre Belly Tank
Helitack 332	Bell 212	Benalla	1400 litre Belly Tank
Helitack 333	Bell 212	Heyfield	1400 litre Belly Tank
Helitack 334	BK117B2	Bacchus Marsh	1200 litre Belly Tank
Helitack 335	Bell 205	Colac	1400 litre Belly Tank
Helitack 345	Bell 212	Olinda	1350 litre Belly Tank
Type 3 Helicopters			
Firebird 301	Bell 206B3 JetRanger	Horsham	410 litre Bucket
Firebird 302	AS350 Super D Squirrel	Moorabbin	500 litre Bucket
Firebird 303	AS350BA Squirrel	Ovens (Myrtleford)	410 litre Bucket
Firebird 304	AS350BA Squirrel	Bairnsdale	500 litre Bucket
Firebird 305	Bell 206B3 JetRanger	Bendigo	410 litre Bucket
Firebird 306	AS350BA Squirrel	Essendon	410 litre Bucket
Firebird 307	Bell 206L3 LongRanger	Essendon	500 litre Bucket
Firebird 309 *	Bell 206L1 LongRanger	Essendon	500 litre Bucket
Firebird 311 **	AS350BA Squirrel	Latrobe Valley	680 litre Bucket
Single Engine Air Tankers (SEATS)			
Bomber 351	AT802F	Stawell	3200 litre Hopper
Bomber 352	PZL M18A Dromader	Portland	2500 litre Hopper
Bomber 353	PZL M18A Dromader	Hamilton	2500 litre Hopper
Bomber 354	AT802F	Albury	3200 litre Hopper
Bomber 355	PZL M18A Dromader	Bairnsdale	2500 litre Hopper
Bomber 356	AT802F	Albury	3200 litre Hopper
Bomber 357	PZL M18A Dromader	Deniliquin	2500 litre Hopper
Bomber 358	PZL M18A Dromader	Leongatha	2500 litre Hopper
Bomber 359	PZL M18A Dromader	Benambra	2500 litre Hopper
Bomber 360	AT802F	Stawell	3200 litre Hopper
Bomber 361	PZL M18A Dromader	Leongatha	2500 litre Hopper
Bomber 365	PZL M18A Turbine Dromader	Bendigo	3000 litre Hopper
Specialist aircraft			
Firescan 300	Beechcraft KingAir 200	Essendon	-NA-
Firescan 350	Cessna 404 Titan	Essendon	-NA-
Birddog 366	Cessna 337	Essendon	-NA-

* Resource acquired through the National Aerial Firefighting Centre

** Resource engaged for Hancocks Victorian Plantations

Appendix 2: Start and finish dates of 2007/08 Service Periods for Contract Aircraft (Requirement 1 and 2)

Aircraft Callsign	Start Date	Finish Date
Type 1 Helicopters		
Helitack 341 *	21 Nov 2007	1 Apr 2008
Helitack 342 *	19 Dec 2007	26 Feb 2008
Helitack 347 *	12 Dec 2007	1 Apr 2008
Helitack 348 *	12 Dec 2007	4 Mar 2008
Type 2 & 3 Firebombing Helicopters		
Helitack 331	28 Nov 2007	4 Mar 2008
Helitack 332	21 Nov 2007	1 Apr 2008
Helitack 333	28 Nov 2007	1 Apr 2008
Helitack 334	21 Nov 2007	1 Apr 2008
Helitack 335	28 Nov 2007	29 Apr 2008
Helitack 345	17 Nov 2007	4 Mar 2008
Type 3 Helicopters		
Firebird 301	28 Nov 2007	6 May 2008
Firebird 302	21 Nov 2007	13 May 2008
Firebird 303	21 Nov 2007	6 May 2008
Firebird 304	28 Nov 2007	6 May 2008
Firebird 305	21 Nov 2007	6 May 2008
Firebird 306	28 Nov 2007	23 Mar 2008
Firebird 307	21 Nov 2007	29 Apr 2008
Firebird 309 *	19 Dec 2007	26 Feb 2008
Firebird 311 **	23 Jan 2008	1 Apr 2008
Single Engine Air Tankers (SEATS)		
Bomber 351	31 Oct 2007	6 May 2008
Bomber 352	28 Nov 2007	4 Mar 2008
Bomber 353	28 Nov 2007	8 Apr 2008
Bomber 354	21 Nov 2007	26 Feb 2008
Bomber 355	28 Nov 2007	4 Mar 2008
Bomber 356	12 Dec 2007	1 Apr 2008
Bomber 357	31 Oct 2007	8 Apr 2008
Bomber 358	28 Nov 2007	8 Apr 2008
Bomber 359	7 Nov 2007	29 Apr 2008
Bomber 360	31 Oct 2007	6 May 2008
Bomber 361	26 Dec 2007	8 Apr 2008
Bomber 365	21 Nov 2007	8 Apr 2008
Specialist aircraft		
Firescan 300	28 Nov 2007	3 Jun 2008
Firescan 350	12 Dec 2007	1 Apr 2008
Birddog 366	21 Nov 2007	26 Mar 2008

* Resource acquired through the National Aerial Firefighting Centre

** Resource engaged for Hancocks Victorian Plantations

Appendix 3: Aircraft Usage 2007/08

Type 1 Helicopters

Aircraft	**Location**	**Hours**	**Hours by task** (ferry time not included)	
			Firebombing	Passenger transport
Helitack 341	Essendon	51.94		
Helitack 342	Essendon	10.20		
Helitack 347	Bacchus Marsh	42.73		
Helitack 348	Mansfield	65.85		
Total		**170.72**	**117.88**	
CFA Total		**25.34**		
DSE Total		**124.05**		

Type 2 and 3 Firebombing Helicopters

Aircraft	**Location**	**Hours**	**Hours by task** (ferry time not included)			
			Firebombing	Rappelling	Firefighter transport	Training
Helitack 331	Moorabbin	32.17				
Helitack 332	Benalla	59.04				
Helitack 333	Heyfield	172.67				
Helitack 334	Bacchus Marsh	41.59				
Helitack 335	Colac/Essendon	130.53				
Helitack 345	Olinda	17.49				
Total		**453.49**	**213.03**	**129.61**	**20.42**	**2.80**
CFA Total		**24.58**				
DSE Total		**414.93**				

Type 3 Helicopters

Aircraft	**Location**	**Hours**	**Hours by task** (ferry time not included)					
			Air Attack	Aerial Ignition	FLIR	Other	Reconnaissance/ Detection	Training
Firebird 301	Horsham	126.67						
Firebird 302	Moorabbin	256.97						
Firebird 303	Ovens (Myrtleford)	145.57						
Firebird 304	Bairnsdale	356.90						
Firebird 305	Bendigo	102.17						
Firebird 306	Moorabbin	110.84						
Firebird 307	Essendon	164.30						
Firebird 309	Essendon	8.21						
Firebird 311	Latrobe Valley	5.35						
Total		**1,276.98**	**150.98**	**128.68**	**62.55**	**68.54**	**230.51**	**17.33**
CFA Total		**41.14**						
DSE Total		**945.11**						

Appendix 3: Aircraft Usage 2007/08

Single Engine Air Tankers (SEATS)

Aircraft	Location	Hours	Hours by task (ferry time not included)	
			Firebombing	Training
Bomber 351	Stawell	60.13		
Bomber 352	Portland	20.77		
Bomber 353	Hamilton	11.74		
Bomber 354	Albury	35.63		
Bomber 355	Bairnsdale	30.52		
Bomber 356	Albury	30.89		
Bomber 357	Deniliquin	27.92		
Bomber 358	Leongatha	28.74		
Bomber 359	Benambra	59.70		
Bomber 360	Horsham	29.70		
Bomber 361	Leongatha	22.79		
Bomber 365	Bendigo	60.64		
Total		**419.17**	**287.19**	**27.98**
CFA Total		**10.75**		
DSE Total		**354.17**		

Specialist Aircraft

Aircraft	Location	Hours	Hours by task (ferry time not included)		
			Infra red	Passenger Transport	Training
Firescan 300	Essendon	96.29	**91.73**	**0**	**0**
Firescan 350	Essendon	25.68	**0**	**25.68**	**0**
Total		**121.97**			
CFA Total		**1.99**			
DSE Total		**96.13**			
			Air Attack	Reconnaissance	Passenger Transport
Birddog 366	Essendon	27.90	**4.62**	**3.09**	**10.31**
CFA Total		**0**			
DSE Total		**21.20**			

Appendix 4: Training Program courses

Course	Participants
Aerial Driptorch Operators	6
Aerial Driptorch Support Crew	18
Aerial Incendiary Bombardier	21
Air Attack Supervisor	20
Airbase Manager	12
Aircraft Officer	24
Air Observer	9
Basic Wildfire Awareness - online	24
FLIR Operator	6
Fly to Wire Environment training	12
Helicopter Sling load	8
Helicopter Underwater Escape Training	8
Helipad Marshall	8
Hot refuelling	52
Hover Exit	14
Incendiary Operations Supervisor	6
Rappel	30
Rappel Dispatcher	7