

AIRCRAFT IDENTIFICATION & SPECIFICATIONS GUIDE



Department of
Environment and
Primary Industries

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This guide is for Agency personnel, to assist with the identification and familiarity of aircraft commonly used for fire operations in Sth Eastern Australia.

Information provided is general for the respective make and model and does not apply to any specific aircraft. The list of aircraft is not exhaustive.

Aircraft performance specifications have been obtained from a number of sources and are provided to allow comparison of the various aircraft makes and models.

Aircraft performance including load and passenger capacity, can be seriously affected by many factors including:

- fuel load;
- temperature;
- humidity; *and*
- elevation.

The stated firebombing fixed tank, bucket or hopper capacities, are the **maximum** rated for the system fitted to a particular aircraft.

External load capacity figures **are approximate** for the type and therefore indicative only.

Stated passenger seating capacity **does not** include the pilot.

Performance data provided **should not** be used for load calculations.

Specific performance details for particular aircraft can be obtained from the Aviation Services Unit.

AIRCRAFT DESIGNATION

Australian rural fire Agencies have agreed to a National Fire Aircraft Type Classification system.

This classification system follows that used by the USDA Forest Service and relates to the aircraft maximum take off weight (MTOW) and fire bombing capacity and is understood by aircraft operators and fire agencies around the world.

Broadly fire aircraft types are classified as follows:

<i>Classification</i>	<i>Former Terminology</i>
Single Engine Airtanker (SEAT)	Fixed wing firebomber (agricultural).
Type 1 helicopter	Large helicopter
Type 2 helicopter	Medium helicopter
Type 3 helicopter	Light helicopter

AIRCRAFT SELECTION

State Aircraft Unit Procedure AM1.06 states:

- Only helicopters powered by turbine engines shall be used for Agency operations.
- Agency aircraft conducting continuous flights over water shall be of a minimum:
 - twin piston engine fixed wing aircraft; or
 - single engine turbine helicopter.
- Restricted Category aircraft, as determined by the Manager *"..... may be used during Agency operations for "lifting" operations only, i.e. firebombing, internal cargo transport or sling loading."*
Restricted Category aircraft shall not transport Agency personnel as passengers.
- In the case of piston engine aircraft, where twin engine aircraft are reasonably available and are operationally suitable for the task to be performed, twin engine aircraft should be used in preference to single engine aircraft.

The principal reason for these procedures is to ensure that the Agencies continue to meet its obligations to provide a safe working environment for employees and contractors, by ensuring that all reasonable steps are taken to minimise the possibility of an aircraft undertaking Agency operations suffering an engine failure which would result in a forced landing in unsuitable terrain.

It is acknowledged that these requirements may result in higher costs being incurred in the first instance.

Agency procedures do provide some latitude in aircraft selection. Given the wide range of situations likely to be encountered, it is impossible to be prescriptive without being unduly restrictive.

AIRCRAFT CALLSIGNS

All operational fire aircraft in Victoria are allocated an alpha/numeric callsign when registered by the Aviation Services Unit.

The following summarises the relevant callsigns:

<i>Callsign</i>	<i>Aircraft Type</i>	<i>Primary Fire Use</i>
Birddog	Twin engine fixed wing aircraft	Reconnaissance and AAS platform.
Bomber	SEAT - fixed wing firebombing aircraft	Firebombing
Firebird	Type 3 helicopter	Reconnaissance, FLIR AAS, aerial ignition, sling load etc.
Firescan	IFR twin engine fixed wing aircraft	Infra line scanning
Firespotter	Single engine fixed wing aircraft	Reconnaissance and AAS platform.
Helitack	Type 1 and 2 helicopter	Firebombing, rappel, fire crew/personnel transport, sling load

TYPE 3 HELICOPTERS

AEROSPATIALE AS350 SQUIRREL

Use	Air attack & reconnaissance platform, FLIR, personnel transport, aerial ignition, external sling load
Max passenger seating	5
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	170 lt/hr (depending on engine type)
Cruise speed	222 kmh / 120 knots (depending on type)
No. of main rotor blades	3
Main rotor diameter	10.7m
Overall length	10.9m
Width skids	2.2 m
Bellytank capacity	900 lt
External load capacity	650 kg



TYPE 3 HELICOPTERS**AEROSPATIALE AS355 "TWIN" SQUIRREL**

Use	Air attack & reconnaissance platform, FLIR, personnel transport, aerial ignition, external sling load
Max passenger seating	5
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	220 lt/hr
Cruise speed	222 kmh / 120 knots
No. of main rotor blades	3
Main rotor diameter	10.7m
Overall length	10.9m
Width skids	2.2 m
External load capacity	650 kg



TYPE 3 HELICOPTERS

BELL 206B JETRANGER

Use	Air attack & reconnaissance platform, FLIR, personnel transport, aerial ignition, external sling load
Max passenger seating	4
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	105 lt/hr
Cruise speed	185 kmh / 100 knots
No. of main rotor blades	2
Main rotor diameter	10.15 m
Overall length	10.3 m
Width skids	1.95 m
External load capacity	400 kg



TYPE 3 HELICOPTERS**BELL 206L LONGRANGER**

Use	Air attack & reconnaissance platform, FLIR, personnel transport, aerial ignition, external sling load
Max passenger seating	5
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	170 lt/hr
Cruise speed	195 kmh / 105 knots
No. of main rotor blades	2
Main rotor diameter	10.4 m
Overall length	13.0 m
Width skids	2.34 m
External load capacity	650 kg



TYPE 3 HELICOPTERS

EUROCOPTER EC 120

Use	Air attack & reconnaissance platform, personnel transport, external sling load
Max passenger seating	4
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	110 lt/hr
Cruise speed	220kmh / 118 knots
No. of main rotor blades	3
Main rotor diameter	10 m
Overall length	11.5m
Width skids	2.07 m
External load capacity	400 kg
Other features	Fenestron instead of conventional tail rotor



TYPE 3 HELICOPTERS**EUROCOPTER EC 130**

Use	Air attack & reconnaissance platform, personnel transport
Max passenger seating	6 - depending on configuration
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	120 lt/hr
Cruise speed	240kmh / 130 knots
No. of main rotor blades	3
Main rotor diameter	10.7 m
Overall length	12.6m
Width skids	2.4 m
Other features	Fenestron instead of conventional tail rotor



TYPE 2 HELICOPTERS

AEROSPATIALE AS365N DAUPHIN

Use	Personnel transport, medical evac, winching
Max passenger seating	10 - depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Cruise speed	260 kmh / 140 knots
No. of main rotor blades	4
Main rotor diameter	11.94 m
Overall length	13.68 m
Width landing gear	1.9 m
Other features	Wheeled undercarriage Fenestron instead of conventional tail rotor



TYPE 2 HELICOPTERS**BELL 205**

Use	Personnel transport, firebombing - bucket/bellytank, rappel, external sling load
Max passenger seating	8 - 14, depending on configuration
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	320 lt/hr
Cruise speed	185 kmh / 100 knots
No. of main rotor blades	2
Main rotor diameter	14.7 m
Overall length	17.7 m
Width skids	2.75 m
Bellytank capacity	1350 lt
External load capacity	1400 kg



TYPE 2 HELICOPTERS

BELL UH-1H

Use	Firebombing - bucket, external sling load
Max passenger seating	Restricted category – nil passenger transport
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	320 lt/hr
Cruise speed	185 kmh / 100 knots
No. of main rotor blades	2
Main rotor diameter	14.7 m
Overall length	17.7 m
Width skids	2.75 m
Bucket capacity	1400 lt
External load capacity	1400 kg



TYPE 2 HELICOPTERS**BELL 212**

Use	Personnel transport, firebombing – bucket/bellytank, rappel, external sling load
Max passenger seating	8 - 14 depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	380 lt/hr
Cruise speed	185 kmh / 100 knots
No. of main rotor blades	2
Main rotor diameter	14.7 m
Overall length	17.7 m
Width skids	2.75 m
Bellytank capacity	1350 lt
External load capacity	1400 kg



TYPE 2 HELICOPTERS

BELL 214B

Use	Firebombing - bucket/bellytank, personnel transport, external sling load
Max passenger seating	8-14 depending on configuration
Engine	Single gas turbine
Fuel type	Jet A1
Fuel consumption	600 lt/hr
Cruise speed	259 kmh / 140 knots
No. of main rotor blades	2
Main rotor diameter	15.24 m
Overall length	18.5 m
Width skids	2.85 m
Bellytank capacity	2700 lt
Bucket capacity	2900 lt



TYPE 2 HELICOPTERS**BELL 412**

Use	Personnel transport, firebombing - bucket/bellytank, rappel, ambulance
Max passenger seating	8 - 14 depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	380 lt/hr
Cruise speed	220 kmh / 120 knots
No. of main rotor blades	4
Main rotor diameter	14.1 m
Overall length	17.3 m
Width skids	2.75 m
Bellytank capacity	1350 lt
External load capacity	1400 kg



TYPE 2 HELICOPTERS

EUROCOPTER EC 135

Use	Personnel transport
Max passenger seating	5 - 7 depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	240 lt/hr
Cruise speed	240 kmh / 130 knots
No. of main rotor blades	4
Main rotor diameter	10.2 m
Overall length	12.19 m
Width landing gear	2.0 m
Other features	Skid undercarriage Fenestron instead of conventional tail rotor



TYPE 2 HELICOPTERS**EUROCOPTER EC 145**

Use	Firebombing - bucket, winch, personnel transport, external sling load.
Max passenger seating	6 – 9 depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	300 lt/hr
Cruise speed	246 kmh / 133 knots
No. of main rotor blades	4
Main rotor diameter	11 m
Overall length	13 m
Width skids	2.5 m
Bucket capacity	1200 lt
External load capacity	1000 kg
Other features	Rear clamshell doors.



TYPE 2 HELICOPTERS

MBB/KAWASAKI BK 117

Use	Firebombing - bellytank/bucket, personnel transport, external sling load.
Max passenger seating	6 – 8 depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	300 lt/hr
Cruise speed	260 kmh / 140 knots
No. of main rotor blades	4
Main rotor diameter	11 m
Overall length	13 m
Width skids	2.5 m
Bellytank capacity	1200 lt
External load capacity	1000 kg
Other features	Rear clamshell doors



TYPE 1 HELICOPTERS**ERICKSON S64 E/F AIRCRANE**

Use	Firebombing.
Max passenger seating	Restricted category – nil passenger transport
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	2080 lt/hr
Cruise speed	185 kmh / 100 knots
No. of main rotor blades	6
Main rotor diameter	22 m
Overall length	27.3 m
Width landing gear	6.7 m
Bellytank capacity	7000 lt (E model) 9000 lt (F model)



TYPE 1 HELICOPTERS

MIL 8

Use	Firebombing – long line bucket, external sling load.
Max passenger seating	Restricted category - nil passenger transport
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	800 lt/hr
Cruise speed	250 kmh / 135 knots
No. of main rotor blades	5
Main rotor diameter	21.3 m
Overall length	25.33 m
Width landing gear	4.5 m
Bucket capacity	4600 lt
Other features	Wheeled undercarriage, rear clamshell doors.



TYPE 1 HELICOPTERS**SIKORSKY UH-60 BLACKHAWK / SH-60B SEAHAWK**

Use	Personnel transport, external sling loads, winching
Max passenger seating	8- 17 - depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	475 lt/hr
Cruise speed	268 kmh / 145 knots
No. of main rotor blades	4
Main rotor diameter	16.4 m
Overall length	19.75 m
Width landing gear	2.71 m
Other features	Wheeled undercarriage Operated by Royal Australian Army & Navy



TYPE 1 HELICOPTERS

SIKORSKY S-61

Use	Firebombing – belly tank or long line bucket, external sling load, rappel, personnel transport
Max passenger seating	18 – for Victorian operations
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	605 lt/hr
Cruise speed	222 kmh / 120 knots
No. of main rotor blades	5
Main rotor diameter	18.9 m
Overall length	22.2 m
Width landing gear	4.4 m
Bellytank capacity	4000 lt
Bucket capacity	3200 lt
Other features	Wheeled undercarriage



TYPE 1 HELICOPTERS**SIKORSKY S-76**

Use	Personnel transport
Max passenger seating	14 - depending on configuration
Engine	Twin gas turbines
Fuel type	Jet A1
Fuel consumption	380 lt/hr
Cruise speed	286 kmh / 155 knots
No. of main rotor blades	4
Main rotor diameter	13.4 m
Overall length	16.0 m
Width landing gear	2.6 m
Other features	Wheeled retractable undercarriage, <i>Note -</i> Only approach from the sides when rotors turning due to extremely low rotor clearance at the front of the aircraft



SINGLE ENGINE AIRTANKER (SEAT)

AIR TRACTOR - AT802

Use	Firebombing – foam, gel & retardant
Hopper capacity	3100 litres
Engine	Gas Turbine - PT6-67AG (1350 shp) or Gas Turbine – PT6-67F (1600 shp)
Fuel type	Jet A1
Fuel consumption	280 lt/hr
Cruise speed	268 kmh / 145 knots
Wing span	18.06 m
Overall length	10.87 m
Undercarriage	Fixed
Wheel track width	3.1 m



SINGLE ENGINE AIRTANKER (SEAT)**AIR TRACTOR - AT802 FIREBOSS**

Use	Firebombing – foam, gel & retardant
Hopper capacity	3100 litres
Engine	Gas Turbine – PT6-67F (1600 shp)
Fuel type	Jet A1
Fuel consumption	280 lt/hr
Cruise speed	267 kmh / 145 knots
Wing span	18.06 m
Overall length	10.87 m
Undercarriage	Float equipped with retractable wheels
Additional information	Capable of scooping and land based loading operations. Requires scooping zone of 1-2km in length and 1.5-3m water depth



SINGLE ENGINE AIRTANKER (SEAT)

PZL DROMADER

Use	Firebombing – foam, gel & retardant
Hopper capacity	2500 litres
Engine	9 cylinder radial
Fuel type	Avgas
Fuel consumption	180 lt/hr /
Cruise speed	200 kmh / 107 knots
Wing span	17.7 m
Overall length	9.47 m
Undercarriage	Fixed
Wheel track width	3.48 m



Single Engine Airtanker (SEAT)

TURBINE DROMADER

Use	Firebombing – foam, gel & retardant
Hopper capacity	3000 litres
Engine	Gas Turbine - Garrett
Fuel type	Jet A1
Fuel consumption	250 lt/hr
Cruise speed	230 kmh / 124 knots
Wing span	17.7 m
Overall length	9.0 m
Undercarriage	Fixed
Wheel track width	3.48 m



Multi Engine Airtanker (MEAT)

CONVAIR CV580

Use	Firebombing – foam, gel & retardant
Hopper capacity	7,950 litres
Engines	2 x Allison 501 Gas Turbines
Fuel type	Jet A/B
Fuel consumption	1225 lt/hr
Drop speed	231 kmh / 125 knots
Wing span	32.1 m
Overall length	24.8 m
Undercarriage	Retractable



Very Large Airtanker (VLAT)

MCDONNELL DOUGLAS DC-10

Use	Firebombing – foam, gel & retardant
Hopper capacity	45,600 litres
Engines	3 x General Electric CF6 Turbo fans
Fuel type	Jet B
Fuel consumption	9400 lt/hr
Drop speed	277 kmh / 150 knots
Wing span	47.3 m
Overall length	55.5 m
Undercarriage	Retractable



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

AERO/SHRIKE/GULFSTREAM COMMANDER

Use	Air attack & reconnaissance platform, personnel transport
Max passenger seating	5 (turbine 7)
Engine	Twin, flat 6 cylinder or turbine
Fuel type	Avgas/Jet A1
Fuel consumption	110 lt/hr
Cruise speed	295 kmh / 160 knots
Wing span	14.9 m
Overall length	12 m
Undercarriage	Retractable
Wheel track width	3.93 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

BRITTEN NORMAN ISLANDER

Use	Air attack & reconnaissance platform, personnel transport.
Max passenger seating	9
Engine	Twin 6 cylinder flat
Fuel type	Avgas
Fuel consumption	120 lt/hr
Cruise speed	257 kmh / 140 knots
Wing span	14.94 m
Overall length	10.86 m
Undercarriage	Fixed
Wheel Track width	3.6 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

CESSNA 172 / 182 (RG)

Use	Air attack & reconnaissance platform, personnel transport.
Max passenger seating	3
Engine	4 cylinder flat / 6 cylinder flat
Fuel type	Avgas
Fuel consumption	37-55 lt/hr
Cruise speed	226-250 kmh / 122 / 135 knots
Wing span	10.97 m
Overall length	8.2-8.5 m
Undercarriage	Fixed and retractable
Wheel Track width	1.7 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT**CESSNA 206**

Use	Air attack & reconnaissance platform, personnel transport
Max passenger seating	3-5
Engine	6 cylinder flat
Fuel type	Avgas
Fuel consumption	55 lt/hr
Cruise speed	250 kmh / 135 knots
Wing span	10.9 m
Overall length	8.6 m
Undercarriage	Fixed
Wheel Track width	1.75 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

CESSNA 337

Use	Air attack & reconnaissance platform, personnel transport
Max passenger seating	3
Engine	Twin-push/pull, 6 cylinder flat
Fuel type	Avgas
Fuel consumption	90 lt/hr
Cruise speed	290 kmh / 157 knots
Wing span	11.6 m
Overall length	9.1 m
Undercarriage	Retractable
Wheel track width	2.49 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

GIPPSLAND AERONAUTICS GA-8 AIRVAN

Use	Air attack & reconnaissance platform, cargo / personnel transport
Max passenger seating	7
Engine	Single, flat 6 cylinder
Fuel type	Avgas
Fuel consumption	56 lt/hr
Cruise speed	222 kmh / 120 knots
Wing span	12.37 m
Overall length	8.9 m
Undercarriage	Fixed
Wheel track width	2.79 m



RECONNAISSANCE TYPE FIXED WING AIRCRAFT

PARTENAVIA

Use	Air attack & reconnaissance platform, personnel transport
Max passenger seating	5
Engine	Twin, flat 4 cylinder
Fuel type	Avgas
Fuel consumption	84 lt/hr
Cruise speed	296 kmh / 160 knots
Wing span	12.0 m
Overall length	9.4 m
Undercarriage	Fixed
Wheel track width	2.4 m



SPECIALIST INFRA RED INTELLIGENCE GATHERING AIRCRAFT

BEECHCRAFT KINGAIR 200

Use	Infra red scanning, personnel transport
Max passenger seating	10
Engine	Twin, gas turbine
Fuel type	Jet A1
Fuel consumption	lt/hr
Cruise speed	480 km / 260 knots
Wing span	16.6 m
Overall length	13.34 m
Undercarriage	Retractable
Wheel track width	5.23 m

