



PR-001
Firebombing Aircraft Types

Standard
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1 Background

Defining types of aircraft based on notional firebombing capabilities provides a common interpretation and streamlines procurement processes.

2 Rotary Wing Aircraft Types

Rotary wing aircraft capable of firebombing have a type based on internal payload and water carrying capacity. Different types may be specified for different configurations (e.g. an aircraft may be RW Type 1 when operating with a tank and RW Type 2 with a bucket).

Type	Internal payload	Water carrying capacity
RW 1	2,268 kg or greater	2,650 litres or greater
RW 2	Between 1,134 kg and 2,267 kg inclusive	Between 1,135 litres and 2,649 litres inclusive
RW 3	Between 544 kg and 1,133 kg inclusive	Between 380 litres and 1,134 litres inclusive
RW 4	Less than 544 kg	Less than 380 litres

Internal Payload

Internal payload = MTOW – Calculated Basic Weight

Maximum Take Off Weight (MTOW) is as specified in the aircraft flight manual for internal loads at International Standard Atmosphere (ISA) conditions. If unspecified, then use the lesser of MTOW or Maximum Gross Weight for internal loads as per the authorised Certificate of Airworthiness, or approved Pilots Operating Handbook. Weights applicable to Australian operations should be used where possible.

Calculated Basic Weight is the Basic Weight (Empty Weight) for the aircraft in the aircraft flight manual, adjusted to include:

- aerial work configuration
- oil
- fuel reserves and unusable fuel
- communication and navigation equipment for fire and emergency service operations
- installed equipment for firebombing operations (e.g. cargo hook, controller, power supply, empty suppressant concentrate reservoir, etc.)
- firebombing tank including door or gate systems

Calculated Basic Weight may exclude:

- flight crew
- suppressant (concentrate or mixed), retardant, etc.
- portable equipment (e.g. survival gear)
- sling load equipment (cables, lines, firebombing bucket, etc.)
- for firebombing aircraft only - quick-change seating that would normally be removed for firebombing operations



Water Carrying Capacity

RW water carrying capacity is the maximum volume of water that can be carried by the aircraft in the tendered delivery system under the following conditions:

- Mean sea level
- International Standard Atmosphere (ISA) plus 25°C
- aircraft carries equipment described in Calculated Basic Weight above plus:
 - reserve and contingency fuel as specified in the CASR Part 91 Manual of Standards
 - 60 minutes of fuel at normal cruise power settings in firebombing configuration
 - normal operating crew (86kg per person).

Type 1 Rotary Wing aircraft may be further categorised as High Volume if able to deliver 100,000 litres of water with added Class A foam concentrate to a foam within 90 minutes of departure from base:

Criteria	Value
Distance from base to water dip/fill site	80 km
Distance from dip/fill site to fire	5 km
Water point suitable for hover filling or bucket dip	Yes
Weather conditions	ISA plus 25°C
Terrain	1,000 feet AMSL
Class A foam concentrate added at	0.3% of total load
Refuelling/foam concentrate reloading	NOT available in first 90 minutes Available at dip/fill site after 90 minutes



3 Fixed Wing Aircraft Types

Fixed wing aircraft used for firebombing are assigned a type based on water carrying capacity:

Type	Engines	Descriptor	Water carrying capacity
FW 1	Multi engine	Large Air Tanker (LAT)	Greater than 11,356 litres
FW 2	Multi engine	Medium Multi Engine Air Tanker (MEAT)	Between 6,813 and 11,356 litres inclusive
FW 3	Multi engine	Small Multi Engine Air Tanker (MEAT)	Less than 6,813 litres
FW 4	Single engine	Medium Single Engine Air Tanker (SEAT)	Greater than 2,270 litres
FW 5	Single engine	Small Single Engine Air Tanker (SEAT)	Less than or equal to 2,270 litres

Water Carrying Capacity

FW water carrying capacity is the maximum volume of water that can be carried in the attached tank(s), excluding concentrate tanks under the following conditions:

- Mean Sea Level
- International Standard Atmosphere (ISA) plus 25°C
- the aircraft carries:
 - reserve and contingency fuel as specified in the CASR Part 91 Manual of Standards
 - 120 minutes of fuel at normal cruise power settings in firebombing configuration
 - normal operating crew (86kg per person)
 - normal mission equipment
 - concentrate injection systems may be treated as empty

Multi Engine Air Tankers

In addition to water carrying capacity, multi engine air tankers:

- are powered by gas turbine engines (turboprop, turbofan, or turbojet)
- have sufficient performance to safely continue a take-off at Maximum Normal Operating Weight (MNOW) under ISA plus 25°C in the event of failure of the critical engine at a critical point in the take-off. Part or all of the load may be dropped during the procedure.

It is desirable that multi engine air tankers:

- can safely continue a take-off at MNOW under ISA plus 25°C in the event of failure of the critical engine at a critical point in the take-off, without dropping the load during the procedure.



FW1 Very Large Air Tankers

Type 1 Fixed wing aircraft may be further categorised as Very Large Airtankers (VLAT) if they can deliver a volume of 40,000 litres of fire-retardant slurry to a fire based on the following scenario and returning without refuelling:

Criteria	Value
Distance from Nominated Operating Base (NOB) to fire	740 km
Depart loaded from NOB	Yes
Specific Gravity of retardant slurry	1.07
Weather conditions	ISA plus 25°C