



ATTACHMENT 3

Very Large Airtanker Project Victoria 2010

VLAT-Project Operations Program

BOM 391 Delivery System Information

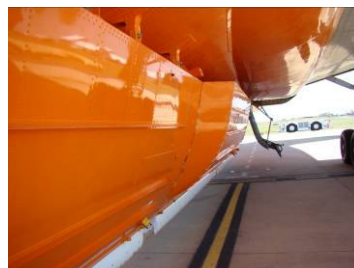


General

Bomber 391 has a purpose built constant flow gravity delivery system. The tank system is positioned along the centre line of the aircraft belly.

The system has a total five tanks, primarily the design consists of three main drop tanks and includes two supplementary fairing tanks.

The three main tanks consist of two Erickson Airrane (EAC) helicopter tanks and one larger tank of similar design derived from the EAC tank, providing total capacity is 45,400-litre (12,000-galUS)



Forward fairing tank and No. 1 Tank

Expanded centre tank, No. 2.Tank.

Aft fairing tank and No. 3 Tank.

The forward and rear fairing tanks are connected to the respective main tanks one and three. Tanks one and three including the additional fairing tank reservoirs have a capacity of 14,307-litre (3,765-gal US). The central tank, number two has a capacity of 16,884-litres (4,443-gal US).

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Loading

The three main external retardant tanks are designed to be filled from a standard 3 inch camlock coupling, utilising three (3) hoses, the whole system takes approximately eight (8) minutes to fill. Filling ports are located on both sides of the primary tanks.



Standard filling port 3" camlock male fitting.



3 X 25 metre loading hoses and ramp skates.

There is no capacity to transfer retardant between the main tanks. The tanks are vented to atmosphere by a system installed on top of each tank to allow air into and out of the tanks during retardant drops and filling.



Ambient venting port.



Level indicator Tank No. 3.

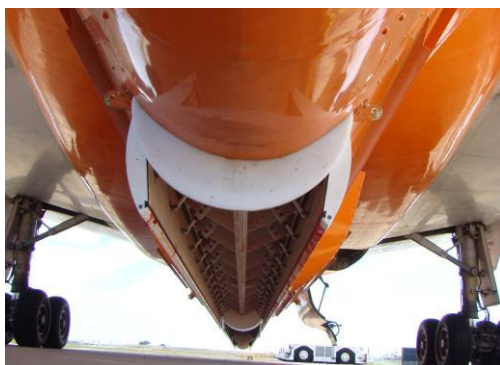
A quarter turn drain valve is installed on the side of each tank located directly above the fill port near the top of the tank, during filling the fill valve is opened and when retardant peaks at the drain valve the respective tank is full.

Delivery options

Each of the three main tanks has two longitudinal doors. The doors are computerised and are programmable and are capable of dropping variable quantities at regulated coverage levels. The various tank and flow combinations that have been developed do not exceed the centre of gravity requirements for the operation of the aircraft.

The flow rate from the firebombing tank can be controlled so that the coverage level of retardant delivered to the ground is appropriate to the type of vegetation and intensity of the particular wildfire. This is achieved by varying the degree of opening of the drop-doors to regulate the flow of retardant through them.

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Longitudinal doors on tank No.1.



Internal baffles and door actuators

Coverage levels

Coverage level is expressed as the volume of retardant per unit area.

The system can deliver coverage levels in nine fixed steps, indicated by the values 1 to 8 and "salvo" on the microprocessor control panel. The indicated steps are in units of gallons (US) per 100 square feet of horizontal surface.

Translated to metric units, the indicated coverage level values of 1 to 8 are equivalent to about 0.4 litres to 3.2 litres per square metre respectively, see table below.

The full-salvo drop, occurs when the flow through the drop-door aperture is unrestricted and the total load is evacuated.

Retardant coverage levels available from the delivery system.	
Indicated coverage level	Coverage level in metric units (litres per square metre)
1	0.4
2	0.8
3	1.2
4	1.6
5	2.0
6	2.4
7	2.8
8	3.2
salvo	total contents evacuated

'Coverage level' as indicated on the microprocessor control panel. This is an expression of the volume—in US gallons—of retardant delivered per 100 square feet of surface.

From experience gained in the use of the delivery system the general guide for the coverage level settings are:

- < CL 6 for light fuels such as grasslands
- CL 6 to 8 for fires in eucalypt forests
- CL 8 and full salvo for high-intensity fires and in areas with high fuel loads.

The pilot can select the number of drops from the one load and the volume and *coverage level* of each drop, providing a variety of options for efficient fire suppression. The volume of a *split-load drop* can be controlled from a minimum of 25% to 50%, 75% or 100% of the volume contained in the firebombing tank.

Further information

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