

FIREFIGHTING CERTAINLY WASN'T WHAT GLENN L. Martin had in mind for the design of the Martin Mars. Originally conceived as a bomber for long range missions and patrols, the production aircraft were redesigned and classified for long-range general transport because of the demonstrated heavy-lift capability of the prototype. The 'Big Four,' as they were affectionately known, established airlift and endurance records which remain valid today and they logged some 87,000 accident-free hours before being retired by the US Navy and sold to Flying Tankers. Mr. Martin would be very pleased to know his original intention



The Mars Martian can make a drop every 15 minutes.

Photo: Sandy McKeellar

The Mighty Mars Martian

of the Mars in a bomber role came to pass in their second career as waterbombers!

During the fire season, the aircraft are kept in a state of readiness to meet the existing fire hazard conditions. They can be in the air in ten minutes and, based on historical data, each can make a drop every fifteen minutes. Working in tandem, this equates to 27,276 litres every seven minutes and each drop can cover an area of up to 1.6 hectares. It has often been said that the Mars, with a 27,216 kilogram payload of foam, is like a huge wet blanket. The highly experienced Mars pilots, working closely with the Incident Commander, deliver the water or foam right where it is needed.

Each Mars carries 2,270 litres of foam concentrate—enough for 21 drops of a 0.4% solution which is the standard used although it may be decided to use more or less foam as dictated by the incident commander. The Mars are also equipped to deliver Thermo-Gel which when mixed with water forms a light gel by encapsulating the water droplets. This product provides a more even coating of the fuels as well as lasting longer on the ground.

Flying Tankers completed test and evaluation of Class A foam in 1986 and began using it with the Mars as a matter of routine in 1987. It has been estimated that the foam capability of the aircraft increases the efficiency of the Mars by at least 30%. The ability of the machines to drop massive amounts

of foam lends itself particularly well to the suppression of urban/rural interface fires and the Mars have excelled in this regard.

The most frequently asked question regarding the Mars is, "How do they pick up their water?" This part of the flying operation is, perhaps, the most demanding in terms of teamwork among the crew. The captain executes a normal landing, keeps the aircraft 'on the step' and allows the speed to decrease to 70 knots. He then passes engine power to the flight engineer and selects the scoops to the 'down' position. The ram pressure for injecting the water into the tanks is such that the aircraft is taking on water at a rate in excess of a ton per second. To account for this added weight, the flight engineer must advance the throttles to maintain a skimming speed of 60-70 knots to ensure the aircraft remains on the step. Pickup time is, on average, 25 seconds. When the tanks are full, the captain will have the scoops raised, call for takeoff power from the flight engineer and carry out a normal loaded takeoff. Once airborne, the foam concentrate is injected into the water load (normally, 30 US gallons of concentrate into the 7,200 US gallon water load) where it is dispersed and remains inert until the load is dropped. Once dropped, the tumbling action causes expansion which converts the water load into a foam load. This process is repeated for each drop. In other words, this vital team work is carried out, on average, every 15 minutes per aircraft. For a

gel drop, the concentrate is injected during the scooping process to allow even mixing. 🍷

Single Sortie - One Aircraft:

Flying time - 5.9 hours
Consecutive drops - 37
US Gallons - 265,000 (1,000,000 litres)

Specifications

Manufacturer: Glenn L. Martin Company
Powerplant: Four Wright Cyclone R3350-24WA engines @ 2500h.p. each (1865 kw)
Curtiss Electric 4-blade propellers with a blade diameter of 15 ft. 2 in. (5 m)
Overall Length: 120 ft. (36m)
Height: 48 ft. (14.63 m)
Hull Beam: 13.5 ft. (4.12 m) Hull Draft: 5.5 ft. (1.68 m)
Wing Span: 200 ft. (61 m)
Gross Weight: 162,000 lbs. (73,483 kg)
Water/Foam Load: 60,000 lbs. (27,216 kg)
Cruising Speed to Fire: 190 mph (305 kmh)
Drop Speed: 138 mph (220 kmh)
Landing Approach Speed: 115 mph (185 kmh)
Touchdown Speed: 92 mph (148 kmh)
Fuel Consumption (Cruise): 420 US gal (1590)
Fuel Consumption (Operations): 780 US gal (2,955)
Operations Duration (normal): 5 1/2 hours
Area Covered, single drop: 3 to 4 acres (1.2 to Drop Height: 150 to 200 ft. (45m to 61m)
Full Tank Load: 7,200 US gal (27,276 Litres)