INTERNATIONAL STANDARD

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Aircraft — Self-propelled potable-water vehicle

Aéronefs — Véhicules autonomes d'alimentation en eau potable

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9678 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*.

Annex A of this International Standard is for information only.

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Aircraft — Self-propelled potable-water vehicle

1 Scope

This International Standard specifies the functional requirements for a self-propelled potable-water vehicle capable of servicing all aircraft commonly in service in civil air transport.

It is not intended to specify equipment design but rather to highlight certain criteria that are known to be essential for efficient operation in the civil airline environment.

In all cases this International Standard should be applied with due reference to national regulations on sanitation that may be applicable in the area in which it is proposed that the vehicle will be used.

To avoid any accidental contamination, the unit should only be used to supply aircraft with potable water.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 450:1976, *Aircraft — Connection for water of drinkable quality*.

3 Structure and overall dimensions

3.1 Mounting the water tank on a production chassis is recommended and will normally result in significant economies in purchase and running costs.

3.2 The overall mass and dimensions of the vehicle shall satisfy all road vehicle regulations applicable in the country of use.

3.3 It shall be possible to drive safely in the vehicle with a full load on public roads at speeds compatible with local road-traffic regulations.

3.4 The overall dimensions shall be kept to a minimum and shall not exceed

— height 1,8 m (6 ft 1 in);

— width 2,1 m (7 ft);

— length 5,5 m (18 ft).

3.5 The lowest point of the vehicle shall be not less than 200 mm (8 in) above the ground.

3.6 The vehicle shall have a turning circle of maximum radius 8 m (26 ft).

3.7 When negotiating two ramps with a 5° difference in angle, the vehicle shall have a minimum clearance of 127 mm (5 in) between any part of the vehicle and the ground at all times.

4 Tank design

4.1 The capacity of the tank shall be between 1 500 l and 4 000 l [330 gal (UK) and 880 gal (UK)].

4.2 The tank shall be made of non-corrosive material and shall be easily washable. In order to avoid accumulation of sediments, the inside fittings, weldings, joints and rivets shall have a smooth finish. Any cylindrical ends shall be dished and corners rounded to a radius of at least 75 mm (3 in).

4.3 The bottom of the tank shall have a slope of approximately 5° and shall have, at the lowest point, a valve of diameter of at least 50 mm (2 in) such that it shall be possible to drain the tank fully by gravity.

4.4 Baffles shall be fitted inside the tank to prevent undue mass movement of the contents under driving conditions.

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4.5 The tank shall have, at the top, a leak-proof manhole of diameter at least 500 mm (20 in), to permit access for cleaning, disinfection and inspection. It shall be possible to lock and seal the manhole.

4.6 An atmospheric airing valve with a filter shall be fitted and installed in such a manner that the exhaust fumes from the engine cannot contaminate the water.

4.7 The unit shall be designed in such a way that the tank and other components may be removed for repair or replacement.

4.8 The tank shall be fitted with a water refill valve.

4.9 The tank shall be fitted with a liquid level gauge which shall be suitably protected and located so that it is visible from the filler hose operating position(s).

4.10 The tank shall be mounted on the chassis by means of fittings that will absorb any dynamic impacts and vibrations during service.

4.11 Where appropriate, the body of the tank shall be fitted with non-slip, self-cleaning walkways at least 300 mm (12 in) wide.

4.12 The unit shall be fitted with an overflow vent which shall be provided with a 150 µm (100 mesh monel) screen.

5 Pumping system

5.1 The pump shall be directly connected to the tank outlet and driven by the engine of the vehicle or by an auxiliary power source.

5.2 Where the pump is driven by the engine of the vehicle, it shall not be possible to engage this drive unless the vehicle's gears are in a neutral or parking position.

5.3 The capacity of the pump shall be equivalent to

— flow: 120 l/min [26 gal (UK)/min];

— pressure: 350 kPa (50 psi).

5.4 A 150 µm (100 mesh monel) screen shall be provided in-line between the pump and the delivery end of the hose.

5.5 The pump shall be constructed of non-corrosive materials and shall meet all current requirements applicable to the handling of potable water.

5.6 There shall be a relief valve, easily accessible from the working platform, to permit water pressure to be easily regulated according to the requirements of different aircraft types. The valve shall be easily adjustable between 150 kPa (21 psi) and 350 kPa (50 psi).

5.7 The functioning of the pump shall be indicated on the control panel by means of instrumentation such as a flow-meter and pressure-gauge.

5.8 All water pipes, hoses and connections shall be made of non-corrosive materials. Connections and fittings shall be leak-proof, easily accessible and replaceable.

6 Working platform

6.1 An 800 mm × 800 mm (32 in × 32 in) elevating working platform shall be provided at the rear of the vehicle.

6.2 The working platform shall be equipped with safety hand-rails.

6.3 The height range of the platform shall be from 0,4 m (1 ft 4 in) to 3 m (9 ft 10 in) above the ground.

6.4 The lifting capacity of the platform shall be 160 kg (350 lb).

6.5 The lift-rate of the platform shall be between 80 mm and 150 mm (3,1 in and 5,9 in) per second.

6.6 The floor of the platform shall consist of an open grid so as to be self-cleaning.

6.7 A fastening connector for the filler-hose shall be installed in the working platform.

6.8 Adequate lighting shall be provided for all control panels and for illumination of all working areas.

7 Charging and replenishing system

7.1 The potable water delivery hose shall be 10 m (33 ft) long with an inside bore of 20 mm (0,75 in). The hose shall be non-collapsible to facilitate water-flow and ease of cleaning. The hose shall not transmit odours, flavours or colouration to the water.

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7.2 The hose shall be provided, at the delivery end, with couplings and/or adapters compatible with standard aircraft connections complying with ISO 450 and/or such other connections as may be employed by the aircraft types to be serviced.

7.3 The water hose shall be located at the rear of the body of the unit and shall be equipped with an adequate storage facility.

7.4 A strainer shall be provided between the pump and the hose.

8 Optional equipment

The following optional equipment may be fitted:

a) winterization equipment such as water heater, pump heater, tank insulation, etc.;

b) water-temperature indicator in the driver's cab;

c) auxiliary manual pumps for the platform lift and water delivery;

d) transmission interlock to prevent vehicle movement when the working platform is raised;

e) retractable hand-rail around the top of the body;

f) a meter, equipped with a zero reset, to indicate the amount of water delivered;

g) a device on the main tank to allow the controlled introduction of water-purification substances.

h) a corrosion-resistant container next to the water-hose storage in order to collect the discharge of the hose when not in use;

i) overload protection to limit the lifting capacity of the working platform to 160 kg (350 lb).

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Annex A
(informative)

Bibliography

[1] ISO 1950:1974, *Aircraft — Identification of servicing, maintenance, ground handling and safety/hazard points.*

[2] ISO 6966:1982, *Aircraft — Basic requirements for aircraft loading equipment.*

[3] *Guidelines for drinking-water quality,* World Health Organization, Geneva, 1984.

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