



Globos Balloons Globus Montgolfières Heissluftballone Montgolfiere Balónu Ballonger Kuumailmapallot Balões Balonlar 熱氣球

## SERVICE INSTRUCTION 02/20

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### **SUBJECT**

Cleaning and use of disinfectants on Hot Air Balloons

### **CATEGORY**

Advisory

### **APPLICABILITY**

Optional on Ultramagic Hot Air Balloons and its Equipment

### **COMPLIANCE**

None (Informative only)

### **BACKGROUND**

The COVID-19 crisis has introduced the need of intense and repetitive disinfection of environments, objects and means of transport. Ballooning activity is therefore also affected, and cleaning and disinfection methods are being required by some health authorities. ULTRAMAGIC, as Type Certificate holder, is not just obliged to investigate all possible aspects concerning to the continuing airworthiness of the aircraft but also to look after the durability of its products and the protection their users.

In line with that, ULTRAMAGIC issues this SI, which provides recommendations and warnings for pilots/operators and any staff involved in the continuing airworthiness of its balloons, whichever is responsible for any possible cleaning and disinfection works.

### **INSTRUCTIONS**

#### **CLEANING OF THE HOT AIR BALLOON**

Below you can find an extract of the relevant sections of the manuals bearing on the cleaning of balloon equipment, with additional clarifications and observations that have been considered significant:

#### **ENVELOPE**

*[AFM Section 7.5.1, 7.6; AMM Section 2.13]*

Only if strictly necessary, envelope should be cleaned using clean water, although is better to dry-wash it whenever possible. A gentle non-detergent soap as long as it is rinsed clean with fresh water. Avoid the use of strong detergents as these could damage the fabric or its coating. Always ensure that the envelope is dry before packing. From a disinfection approach, note that most of the envelope is continuously subjected to temperatures above the 70°C while in flight, conditions under which this virus

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survival capacity is known to be very low.

### **BASKET / FUEL SYSTEM**

[AFM Section 7.5, 7.6; AMM Section 3.1]

The basket, burner and cylinders may be cleaned using clean water, together with gentle soaps if necessary. For any chemical product used, read carefully first the instructions and verify its scope of use, and rinse clean fully with fresh water after the application. If in doubt about possible corrosive effects on metals or chemical attack on elastomers, rubbers and seals, product must not be used. Always endure that all systems are dry before storing. If the basket is fitted with a cushion floor it is recommended to remove it from the basket before cleaning it to avoid moisture problems. Reinstall the cushion floor again when the basket is completely dry. In order to minimize the exposure of sealing elements from the fuel circuit, it is recommended to apply products to a cloth or soft paper first rather than spraying or soaking the equipment directly.

### **CONSIDERATIONS ABOUT BALLOON DISINFECTION**

The impact of the current pandemic is such that Health authorities worldwide, companies and research/investigation entities are issuing daily new information and/or products to face the situation and difficult the propagation of the virus. So, as initial measure, we **recommend all pilots and operators to stay attentive to new instructions and recommendations** from WHO and local health authorities. We also remind about the **obligation to meet at all times the health and safety regulations adopted by each applicable authority**, which will always prevail to the recommendations of this document.

With regard to the CARS-CoV-2 (COVID-19) disinfection agents, at the present date, Authorities have already identified several effective products and methods, if applied in the right concentrations, dose and/or methodology. However, from a disinfection point of view, the variety of products and techniques available is so big that it turns impossible to specify which are effective and which not, and which are recommended for its use on balloons (and in all cases, this corresponds to the health authorities).

The raising interest in applying these products/procedures to disinfect hot air balloon equipments leads ULTRAMAGIC to remind of the possible risks of its use on an aircraft. With regard to the continuing airworthiness, ULTRAMAGIC is obliged to warn against known and unknown risks, aiming to minimize the possibilities of **jeopardizing the safety of the aircraft and/or durability of its materials** after a repetitive use of such products.

In line with that, below we highlight some aspects and warnings about some of the most frequent agents and disinfection techniques (non-exhaustive summary):

<b>AGENT</b>	<b>RELEVANT ASPECTS</b>
Ethanol (Ethylic alcohol)	Flammable product while being applied. Due to its volatility, it is not recommended for a repeated use on rubber items (hoses), as it could accelerate its drying and generate cracking. Generally speaking, it does not alter metals, woods, wicker nor plastics. However, it may damage seriously the coating of some envelope fabrics.
Sodium Hypochlorite (Bleach)	As chlorinated product, it may easily cause corrosion on metals and damage fabric coatings. It may cause discoloration and weakening of textile fibres and leathers.
Isopropyl Alcohol	Similar to Ethanol, though not recommended on Polyamides (Nylon).
Hydrogen Peroxide	It may damage the coating of certain envelope fabrics. It may also affect seals, rubber/nitrile items, polyamides, and generate corrosion on non-stainless steels. It may cause discoloration of certain textile fibres.

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Lactic Acid	It may damage brass or non-stainless steel parts.
Acetic Acid	It may affect the coating of fabrics, as well as polyamides, non-stainless steels and certain fuel circuit seals (Viton, FKM).
UV Treatment	There are no specific investigations about the effects of UV radiation applied to balloon materials. However, an intense exposure on fabrics, porous materials and elastomers or plastics may gradually decrease its flexibility and alter its colour in long term.

The list above does not account fundamental aspects such as the concentration/dilution of the products, as well as its mixture with other chemicals. It is neither an exhaustive list: **the fact that a product is not listed does not mean that it is recommended for its use** on a balloon. A thorough lecture of the **composition, cautions and application method** is mandatory for any product to be used, mainly on important elements such as the **fuel circuit items, cables and load tapes, pulleys, ropes or the envelope fabric itself**.

At all times, any disinfection means applied must not enter in conflict with the **instructions from the latest approved Flight and Maintenance Manuals applicable** for each aircraft. If in doubt, contact your local CAA, ULTRAMAGIC or any of its agents.

## REFERENCE LITERATURE

- EASA COVID-19 Aviation Health Safety Protocol, Issue 1.1 (21/05/2020).  
[https://www.easa.europa.eu/sites/default/files/dfu/EASA-ECDC\\_COVID-19\\_Operational%20guidelines%20for%20management%20of%20passengers\\_final.pdf](https://www.easa.europa.eu/sites/default/files/dfu/EASA-ECDC_COVID-19_Operational%20guidelines%20for%20management%20of%20passengers_final.pdf)
- WHO Cleaning and disinfection of environmental surfaces in the context of COVID-19, 15 May 2020  
<https://apps.who.int/iris/handle/10665/332096>
- ECDC Interim guidance for environmental cleaning in non-healthcare facilities, 18 Feb 2020  
<https://www.ecdc.europa.eu/en/publications-data/interim-guidance-environmental-cleaning-non-healthcare-facilities-exposed-2019>
- Ultramagic Flight Manual, Ed.4 Rev.25
- Ultramagic Maintenance Manual, Ed.4 Rev.18



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