

This Week's Featured Article:

Washing isn't Washing: Aircraft Cleaning and Detailing

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When asked if cleaning an aircraft is maintenance or preventative maintenance, the Federal Aviation Administration (FAA) responded that "The regulations do not consider physical cleaning of an aircraft as maintenance or preventative maintenance." The FAA continues that they "do not consider cleaning seat cushions/covers maintenance or preventative maintenance" either.

Unfortunately, that answer is a bit misleading and if you don't read the entire comment, you may be led to actually violating the aviation regulations.

The FAA also says that: "However, when preparing the aircraft for cleaning requires removal of components or protection of components that may fall under the definition of maintenance or preventative maintenance."

It is almost impossible to correctly wash an aircraft without performing some level of maintenance or preventive maintenance.

Anytime, you wash an aircraft, you should cover the static pressure ports. Disabling the static system and restoring the static system is a maintenance, or preventive maintenance task. For some aircraft, you may have a need to open landing gear doors so that you can properly clean the wheel wells; again, this may be a maintenance or preventive maintenance task.

After the cleaning process, it is almost always necessary to reapply lubricants and preservatives to the aircraft and components. The FAA considers both of these actions to be considered maintenance/preventative maintenance.

This leads to the question: who is authorized to perform maintenance and preventive maintenance, what are the performance rules, and like any bureaucracy, what is the paperwork requirements?

First, who is authorized to perform the maintenance task?

The Federal Aviation Regulation (FAR) for who can perform maintenance is 14 Code of Federal Regulations (CFR) Section 43.3: Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations.

Generally, the regulation states that the only people (or companies) who may perform maintenance or preventive maintenance are:

The holder of a mechanic certificate; or,
The holder of a repairman certificate; or,
A person working under the supervision of a mechanic or repairman; or
The holder of a repair station certificate; or
A Part 121 or 135 air carrier; or,
A pilot may perform preventive maintenance on any aircraft owned or operated by that pilot which is not used under part 121, 129, or 135; or,
A sport pilot certificate may perform preventive maintenance on an aircraft owned or operated by that pilot and issued a special airworthiness certificate in the light-sport category.

What are the performance standards?

The FAA has, regulations, guidance in the form of Advisory Circulars and policies in the form of Orders, Notices, and Memos.

For aircraft washing we will just focus on regulations and guidance.

The performance rules for maintenance are contained in 14 CFR Section 43.13 Performance rules (general).

While, the FAA may not define the physical task of washing the aircraft or upholstery as a “maintenance” task, these performance rules should still be adhered to for the continued safety of the aircraft and aircraft systems. The aircraft structure is susceptible to corrosion from acidic or alkaline cleaners while in extreme conditions, acidic cleaners could cause hydrogen embrittlement on steel fittings. In addition to the protection of the fuselage and exterior components, the interior upholstery can be negatively impacted if the cleaning solvents used reduce the flame retardant chemicals that were applied to the seating, carpeting and fixtures.

The regulations require each person who performing maintenance or preventive maintenance to use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness.

Larger aircraft will typically have the washing procedures included in their maintenance manuals. Smaller and older aircraft may not have specific washing instructions. For these aircraft, as well as newer aircraft with out instructions, the regulations also allow for “other methods, techniques, and practices acceptable to the Administrator.”

The “acceptable” methods are contained in Advisory Circulars, military technical orders (maintenance manuals), public standards, and other public documents.

The regulations also requires that each person performing maintenance or preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition.

To assure that you have not damaged the aircraft, components or upholstery, washing and cleaning should be accomplished following the instructions in the aircraft maintenance manuals, but should they not contain the washing and cleaning procedures and instructions, the next best sources are the advisory circulars and military technical manuals.

(AC) 43.13-1B; Acceptable Methods, Techniques, and Practices — Aircraft Inspection and Repair. This AC contains methods, techniques, and practices acceptable to the Administrator for the inspection of civil aircraft, only when there are no manufacturer repair or maintenance instructions. Included are provisions for corrosion prevention which is washing.

AC 43-4A: Corrosion control for Aircraft; is a summary of current available data regarding identification and treatment of corrosive attack on aircraft structure and engine materials.

AC 43-4A incorporates by reference the acceptable processes of military manuals such as NAVAIR 01-1A-509, Aircraft Weapons Systems Cleaning and Corrosion Control, and U.S. Air Force Technical Order (TO) 1-1-2, Corrosion Control and Treatment for Aerospace Equipment. Information on purchasing these manuals can be found in the AC or on the internet.

The military manuals are one of the best places, beside the aircraft maintenance manuals, where you will find acceptable techniques for washing an aircraft. TO 1-1-691: Cleaning and Corrosion Prevention and Control, Aerospace and non-Aerospace Equipment, is a excellent manual for basic washing procedures as well as the Notes, Cautions, and Warnings that should be followed.

One of the challenges of washing aircraft is using products that will not harm the environment. Many of the legacy cleaning solvents were petroleum based and cannot be used today. To find an acceptable alternative, the FAA has published guidance for selecting alternative chemicals and solvents in their AC 43-205 – Guidance for Selecting Chemical Agents and Processes for Depainting and General Cleaning of Aircraft and Aviation Products. This AC contains guidance for qualifying alternative chemical agents and/or processes used in general cleaning of aviation products.

You don't have to be in the cleaning and detail business to be affected by the regulations applicable to cleaning an aircraft. Anyone involved in washing and detailing aircraft are affected by these regulations, guidance and policies

including aircraft owners and operators, Fixed Base Operators, repair stations and the specialty detailing companies.

While the FAA may not consider the physical act of cleaning an aircraft as maintenance or preventative maintenance, it should not be taken lightly. The person doing the work cannot perform a "maintenance task" unless they are properly license or certificated. It is also important that the person cleaning the aircraft follow the instructions or guidance available for performing the task, otherwise the airworthiness of the aircraft could be compromised.

Many of us started our aviation careers washing airplanes, but with today's high performance aircraft, the procedures, processes and chemicals used in aircraft cleaning have the ability to negatively affect critical navigation and control systems or aircraft fuselages.

Aviation is a great industry: just take the extra steps to do it right.