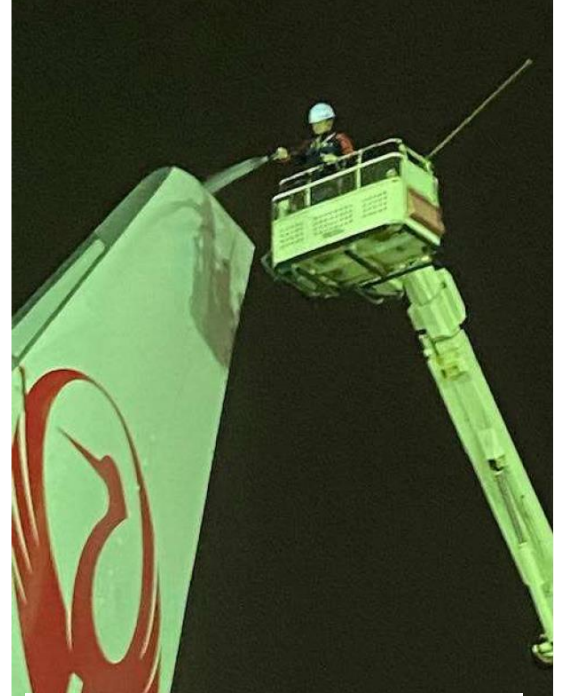


Conservation of Water Resources

The target for water conservation at the 5 Maintenance Centers of the Engineering and Maintenance Division is a 1% reduction from the previous year.

1. Significant water conservation by washing airframes by hand, etc.

A lot of water is used in aircraft maintenance. Aircraft fuselage cleaning is required to not only keep the outer surface clean, but also to prevent corrosion of the fuselage, for safety purposes. The cleaning is carried out by about 10 workers once per month using hoses and mops, and much effort is put in to save water.



Spraying Water from a Hose on the Vertical Stabilizer

【Explanation from JAL Ground Service Tokyo Narita Branch Maintenance Service Department 1】

In airframe cleaning, we wash the entire aircraft by hand, using High Lift Loaders and mops. When using high pressure water, we turn down the water flow to the extent that it does not interfere with the cleaning work, instead of a full flow.

This has led to an average water saving of about 1 cubic meter per aircraft.

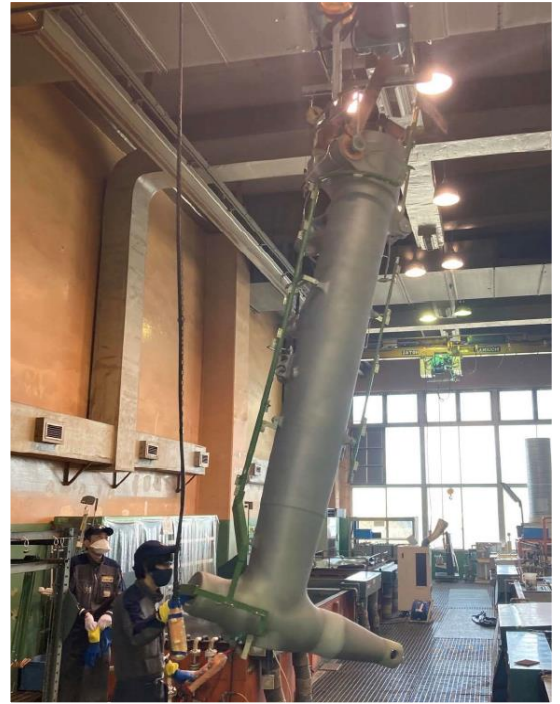
In addition, by keeping the airframe clean through washing, air resistance during flight is reduced and fuel (CO₂) is reduced.



Mop Cleaning of the Vertical Stabilizer

2. Large quantities of water used to clean components are reused after treatment.

The JAL Group uses a large amount of water to clean engines, aircraft, and parts removed during aircraft maintenance. Engines are broken down into more than 60,000 parts, and hence the cleaning process requires large amounts of water to wash away the cleaning agents. Most of it is recycled at a treatment facility and used again for cleaning. At the engine maintenance center in Narita, about 90 cubic meters of wastewater is reused per day and new water consumption is limited to 1-4% of the total water consumption. Some repair processes, such as engine parts and landing gear (aircraft landing gears), require rinsing of the treatment agent after surface treatment of the metal. The Haneda component service center reuses about 50 cubic meters per day. The Narita and Haneda maintenance centers have a system in place to measure, analyze, and monitor approximately 20 environmental items and hazardous substances in treated water (17,000 cubic meters in FY2021) discharged to the sewage system.



Landing Gear Preparation Process

【Explanation from the Safety and Health Department, JAL Engineering Co.】

Wastewater from metal surface treatment facilities contains hazardous substances. Therefore, we pay careful attention to the quality control of the wastewater. To ensure proper treatment, daily management of wastewater treatment facilities, such as piping and pumps, is also essential.



Wastewater Treatment



Landing Gear Rinsing Process

3. Water recycling during engine water washing

The engines of airplanes gradually become dirty as dust and other small particles in the air accumulate inside the engines in flight. This dirt reduces the fuel consumption of the engine, resulting in excess CO₂ emissions.

Therefore, the JAL Group regularly cleans the inside of the engines to remove dirt that has adhered in flight. This process has led to an approximate 1% improvement in fuel consumption. The engine cleaning is performed at intervals of 200 to 300 days.



Water Recycling with Eco Power Washing Equipment