

(Joint Release)

February 02, 2026
Japan Airlines Co., Ltd.

ZIPAIR Tokyo Inc.
Japan Aerospace Exploration Agency
O-Well Corporation

First Application of Riblet-shaped Paint to ZIPAIR Aircraft

~Promoting decarbonization by dual riblet application base and improved process~

Japan Airlines Co., Ltd. (Headquarters: Shinagawa-ku, Tokyo; President: Mitsuko Tottori; hereinafter "JAL"), the Japan Aerospace Exploration Agency (Headquarters: Chofu City, Tokyo; President: Hiroshi Yamakawa; hereinafter "JAXA"), O-Well Corporation (Headquarters: Nishiyodogawa-ku, Osaka; President: Yasuharu Kawato; hereinafter "O-Well"), and ZIPAIR Tokyo Inc. (Headquarters: Narita City, Chiba, President: Shingo Nishida; hereinafter "ZIPAIR") have applied the riblet-shaped (*1) coating for the first time to the side of the fuselage of Boeing 787-8 aircraft (JA851J). The aircraft has started operation on international routes from 27 January 2026.

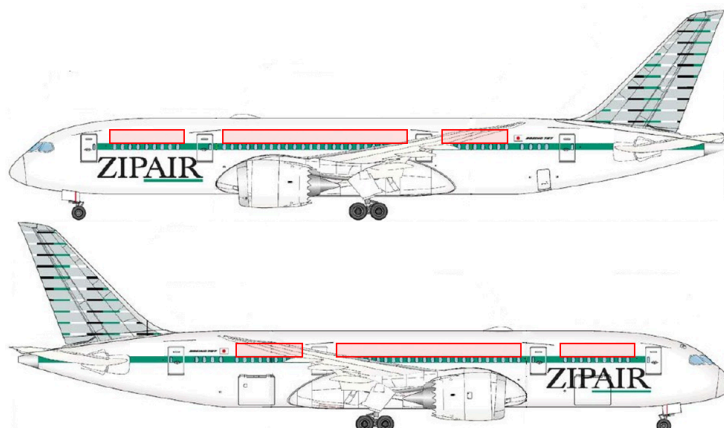
Through this initiative, JAL, JAXA, O-Well, and ZIPAIR will continue to work together to promote aircraft decarbonization by reducing drag during cruising, thereby improving fuel efficiency and reducing CO₂ emissions.



ZIPAIR Aircraft after Riblet Coating (Boeing 787-8)



Riblet Application Work Scene at JAL Hangar,
Narita International Airport

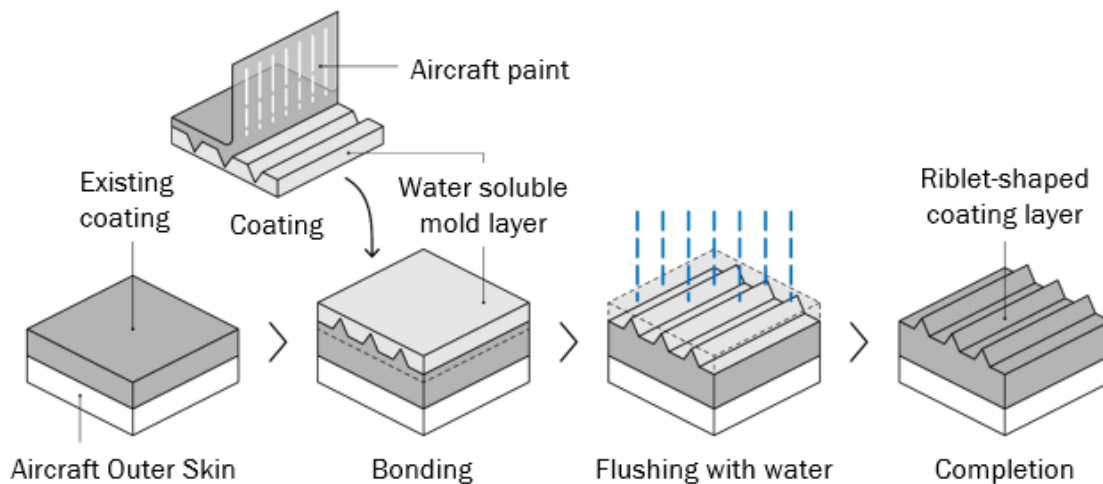


Riblet Coating Area (JA851J)

ZIPAIR, a medium- to long-haul low-cost carrier (LCC) of the JAL Group, received carbon neutrality certification verified under the international standard “ISO 14068-1:2023” in May 2025 and has been promoting the reduction of CO₂ emissions. As part of these efforts, the riblet coating application was carried out.

This application was carried out for the first time on an aircraft of ZIPAIR, JAL Group’s medium- to long-haul low-cost carrier (LCC). As previously, the riblet-shaped coating was applied to the aircraft’s fuselage by using the continuously improved "Paint-to-Paint Method" (*2).

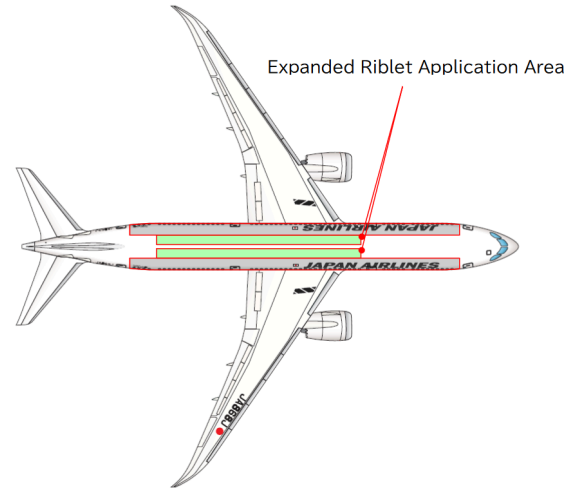
This time, the quality and efficiency of the application have been improved by newly introducing a sheet positioning jig and improving the crimping jig of the riblet molding sheet. The application was successfully completed at Narita International Airport, ZIPAIR’s maintenance base, in addition to Haneda International Airport.



Paint-to-Paint Method: A method that forms a textured coating on the existing paint film using a water-soluble mold

Additionally, on JAL’s Boeing 787-9 aircraft (JA868J) (*3), which has been operating with large-scale riblet coating since 18 January 2025, the application was expanded to the upper fuselage area in November 2025 and has continued to operate on international routes. According to JAXA’s estimated drag reduction analysis using riblets, the expanded coating on the upper fuselage improved the drag reduction rate during cruising from 0.24% to 0.31%, resulting in an expected annual reduction of approximately 154 tons of fuel consumption and 492 tons of CO₂ emissions (*4).

Furthermore, research and development are underway on a new riblet shape with higher drag reduction performance—the sharp single bevel riblet (*5)—and its durability during flight is being evaluated.



This initiative has been advanced through the joint demonstration scheme under the JAXA Space Innovation through Partnership and Co-creation (J-SPARC) program (*6). We will continue to verify the durability and aesthetics of the riblet-shaped coating, as well as its fuel efficiency improvement effects on long-haul international flights, and expand the number of aircraft and application areas, thereby further promoting aircraft decarbonization.

- (*1) Riblet: Fine groove structure inspired by the shape of shark skin, which reduces water resistance. By forming a finegroove structure on the aircraft's exterior panel along the air flow during flight, drag can be reduced.
- (*2) Paint-to-Paint Method: A method that forms a textured coating on the existing paint film using a water-soluble mold. Joint patent by O-Well and JAXA (Patent No. 6511612).
- (*3) January 24, 2025 Press Release: World's First Aircraft with Large Scale Riblet Coating Introduced on International Routes
<https://press.jal.co.jp/en/release/202501/008590.html>
- (*4) The predicted effect of flying the route for one year, calculated based on the drag reduction rate estimated by JAXA and the fuel consumption on the Narita-Frankfurt route over the past year.
- (*5) With a cross-section similar to that of a single-bevel kitchen knife, the sharp single-bevel riblet demonstrates an improved skin-friction drag reduction of approximately 6 to 6.5 percent, whereas conventional riblets achieve about 5 percent.(Japan Patent No. 7770011: Riblet Structure and Object, U.S. Patent US 12,415,596 B2: Riblet Structure and Object) Japanese patent)
- (*6) "Space Innovation through Partnership and Co-creation (J-SPARC)" is one of JAXA's industrial promotion programs, under which the project titled "Development of Advanced Aircraft riblet" is being jointly demonstrated,
<https://aerospacebiz.jaxa.jp/en/solution/>

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