U.S. Department
of Transportation
Federal Aviation
Administration

SAFO

Safety Alert for Operators

SAFO 23001
DATE: 01/03/23

Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

Subject: Potential Damage to Nose Landing Gear (NLG) by Improper Towing Procedures of the Mitsubishi Heavy Industries Regional Jet (MHIRJ) (formerly Bombardier) CL-600-2B19, CL-600-2C10 and CL-600-2D24 Airplanes.

Purpose: This SAFO serves to alert air carriers and commercial operators of the potential for damage to the NLG when using certain towing procedures. In particular, this SAFO alerts air carriers and commercial operators that they should avoid certain towing procedures in which a towing strap is placed around the NLG housing, as per MHIRJ's[1] Instructions for Continued Airworthiness as written in the Aircraft Maintenance Manual (AMM).

Background: The AMM advises only securing the towing strap of a towbar-less style aircraft tractor, commonly referred to as a "Lektro" tractor, to the NLG chrome piston, commonly referred to as an oleo piston. When placed around the NLG housing, also referred to as the NLG barrel, barrel housing, or outer cylinder, the towing strap can cause damage over time by abrading through the paint, conversion coatings (alodine or cadmium plating), and the surface stress relieving treatments (shot-peening).

Discussion: Some General Operations Manuals (GOMs) instruct operators to place the towing strap in specific places depending on the facts of a situation. If a tow collar is installed on the NLG, the GOMs instruct operators to place the towing strap on the tow collar. If there is no tow collar installed on the NLG, the GOMs instruct operators to place the tow strap on the NLG chrome piston. Placing the towing strap on the NLG housing is meant to be a last resort, only to occur if there is no tow collar installed and ***none*** of the NLG chrome piston is visible.

While limited situations might exist in which none of the NLG chrome piston is visible and placing the towing strap around the NLG housing is the only possible way to secure the strap, such placement should be used only as a last resort. Cumulative wear damage to the NLG housing occurs when the towing strap is placed around the NLG housing. In addition to the wear damage on the NLG housing, placing the towing strap on the NLG housing causes frequent impact damage as a result of the strap sliding up and bending the proximity switches. This damages the wiring harnesses and various linkages. The harnesses

[1] On June 1, 2020, MHIRJ acquired the CRJ maintenance, support, refurbishment, marketing, sales, and Type Certificates from Bombardier.

and linkages are also damaged when the operator misroutes the towing strap while placing it around the housing. This type of damage typically results in a "gear disagree" message, leading to the NLG failing to retract after take-off. Therefore, operators should generally avoid placing the towing strap around the NLG housing.

Recommended Action: If using a procedure in a GOM that describes placing the towing strap around the NLG housing, air carriers and commercial operators should remain mindful that instructions in GOMs only indicate following this procedure when no tow collar is present and when none of the NLG chrome piston is visible.

Contact: Questions or comments regarding this SAFO should be directed to the Aircraft Evaluation Division at 9-avs-afs-100@faa.gov.