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Date: March 7, 2024

Subject: ERA24LA092 Master Cylinder Photo Examination

Inspector Ariel Rivera with the Orlando FAA/FSDO previously noted during an on-scene examination that the right brake caliper was damaged during the accident sequence but appeared functional with no leaks or defects noted.

On January 29, 2024, the inspector traveled to the airplane to complete an inspection of the brake system. No evidence of leaks was found at the brake connection points or general pipping of the brake system. Both right and left pedal linkages were capable of full travel movement with no binding noted. The inspector and a maintenance mechanic from the flight school, Epic Flight Academy, removed the right brake master cylinder for inspection. They pressure tested the cylinder with no leaks noted. The master cylinder was disassembled, and the o-ring and backup ring were photographed. The inside of master cylinder and the piston condition were clean and free of any scoring or marking. The inspector further noted that approximately 2 ounces of fluid was removed from the master cylinder, but some was lost during the removal process.

Review of the photographs appear to show that the o-ring took set and received flat spots. Photograph 1 shows flat spots on the outer edge of the o-ring. The maintenance mechanic was asked to remove the o-ring and backup ring for additional photographs. Photograph 2 shows the backup ring on the left and o-ring on the right as removed. The backup ring was damaged during the removal process. After review of the photographs provided by the FAA inspector, the maintenance mechanic was asked to photograph the removed o-ring beside a new o-ring of the same part number (MS28775-110) on January 31, 2024. Photograph 3 shows the new o-ring on the left and the removed o-ring on the right. The removed o-ring appears to have set and taken flat spots, as indicated with arrows, when compared to the

rounded, new, o-ring. There is no requirement to disassemble the master brake cylinder on a regular basis.



Photograph 1 – Flat spot/setting of o-ring (Courtesy of FAA)



Photograph 2 – O-ring and backup removed (Courtesy of FAA)



Photograph 3 – Removed o-ring and new o-ring (Courtesy of Epic Flight Academy)