



Mr. Jonas Bäckstrand  
Swedish Accident Investigation Authority  
P.O. BOX 12538  
SE-102 29 Stockholm  
Sweden

Dear Mr. Bäckstrand:

This is the final response to Safety Recommendation 14.146 issued to the Federal Aviation Administration (FAA) on August 29, 2014, by the Swedish Accident Investigation Authority, *Statens haverikommission* (SHK). The SHK issued this recommendation following its investigation into a landing excursion involving a Rockwell Commander-112, registration SE-FLS, at Bromma Stockholm Airport, Stockholm County. On November 4, 2013, the accident aircraft's flight and approach to runway 12 at Bromma Stockholm Airport were normal. During landing when the nose wheel was set down, the aircraft swerved along the runway center line and finally left the runway, knocking down a sign. The pilot stated that he did not brake as he realized the risk of incorrect usage of the brakes could have intensified the swerving, which he feels could have aggravated the situation.

14.146. Provide information on the connection between an imbalance in the nose wheel and nose wheel shimmying. (RL 2014:12 (R1))

FAA Comment. The FAA's Aircraft Certification Office has reviewed the Commander Model 112 Maintenance Manual and paragraph 9-8(a) of FAA Advisory Circular 43, 13-1B/2A, Acceptable Methods, Techniques, and Practices- Aircraft Inspections, Repair & Alterations. The FAA notes that correct balance is important. A heavy spot on an aircraft tire, tube, or wheel assembly causes that heavy spot to always hit the ground first upon landing. This results in excessive wear at one spot and an early failure at that part of the tire. A severe case of imbalance causes excessive vibration during take-off and landing, especially at high speed.

The Commander Model 112 Maintenance Manual and FAA maintenance guidance provide a clear connection between an imbalance in the nose wheel and nose wheel shimmying. The maintenance manual refers to section 5, Landing Gear, Wheels and Brakes, Figure 6-12, Trouble Shooting the Landing Gear System, and provides the following information:

| <b>TROUBLE</b>    | <b>PROBABLE CAUSE</b> | <b>REMEDY</b>                            |
|-------------------|-----------------------|--|
| Nose Wheel Shimmy | Tire Imbalance        | Remove tire for balance check. Rebalance |

Tire manufacturers' guidance should be followed when balancing and maintaining aircraft tires. A good reference is the "Aircraft Tire Care and Maintenance" manual published by Goodyear Aviation. The Web site can be accessed at:  
<http://www.goodyearaviation.com/resources/pdf/aircraftmanual.pdf>.

After careful consideration of this safety recommendation, I believe that the FAA has effectively addressed this safety recommendation and consider our actions complete.

The FAA would like to thank the Swedish Accident Investigation Authority for submitting FAA Safety Recommendation 14.146 and its continued interest in aviation safety. If you have any questions, or need additional information regarding these safety recommendations, please contact the FAA Safety Recommendations Program staff at 9-AVP-FAA-SafetyRecs@faa.gov. Alternatively, you may contact Mr. Rolf Brockmeyer, AVP-420, at (202) 267-3706.

Sincerely,



602-Wendell Griffin  
Director, Office of Accident Investigation  
and Prevention