



February 10, 2020

National Transportation Safety Board  
45065 Bles Park Drive  
Ashburn, VA 20147

Attn: Timothy W. Monville

Ref: ERA19FA023, Woodbine, NJ, 10/23/2018, N9667M

In support of an NTSB investigation involving the crash of a 1966 M20C, Mooney conducted testing of the manual extension and retraction system on aircraft at hand. The purpose of the tests were to determine the forces required to raise and lower the landing gear with the manual landing gear lever, commonly referred to as the "Johnson Bar". Mooney did not have the means to measure the actual force applied to the Johnson bar so a comparison test was conducted between an aircraft that had landing gear assist springs and an aircraft that did not have the assist springs.

The testing was conducted on November 7 and 9, 2018 by Mooney Engineering Department personnel. The aircraft that were available for the testing were:

1963 M20E (SN [REDACTED]) N [REDACTED]  
1955 M20 (SN [REDACTED]) N [REDACTED]

The tests for both aircraft were conducted in a hangar with the aircraft on jacks. An operator occupied the pilot seat to position the Johnson bar up and down while observers were positioned outside the aircraft to observe the movement of the landing gear. The testing was documented by videos which were forwarded to the NTSB by separate correspondence.

The testing concluded that for both aircraft the landing gear could be lowered to a down and locked position and raised back up with the Johnson bar although it took notably more effort to position the landing gear in the aircraft without the assist springs (N [REDACTED]) than it did with the assist springs installed (N [REDACTED]).

As this was a comparison test between the two aircraft, the actual forces required to position the Johnson bar up and down were not measured.

[REDACTED]  
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