

Continuing Airworthiness Notice – 27-013



Control Sticks fitted with a G205 Stick Grip manufactured by The Ray Allen Company

21 August 2019

Issued by the Civil Aviation Authority of New Zealand in the interests of aviation safety. A Continuing Airworthiness Notice (CAN) is intended to alert, educate, and make recommendations to the aviation community. A CAN contains non-regulatory information and guidance that does not meet the criteria for an Airworthiness Directive (AD). The inspections and practices described in this CAN must still be carried out in accordance with the applicable NZCAR Parts 21, 43 and 91 - CAN numbering is by ATA Chapter followed by a sequential number for the next CAN in that ATA Chapter.

Applicability:

Aircraft with a control stick fitted with a G205 stick grip manufactured by The Ray Allen Company.

Affected stick grips are known to be installed on, but not limited to Rans aircraft models fitted with a horizontal stabiliser electric pitch trim system.

Purpose:

This Continuing Airworthiness Notice (CAN) is issued to bring attention to an airworthiness concern with G205 stick grips manufactured by The Ray Allen Company fitted on aircraft with a horizontal stabiliser electric pitch trim system.

This CAN is also applicable to other aircraft fitted with an all-moving horizontal stabiliser, which may have a horizontal stabiliser electric pitch trim system with a similar control stick configuration prone to the same safety concern.

Background:

This CAN is prompted by a fatal accident involving a Rans S-19 aircraft. The preliminary investigation found the horizontal stabiliser electric pitch trim actuator almost in a full nose down position.

The aircraft EFIS system on the accident aircraft records certain flight parameters, including the horizontal stabiliser electric pitch trim position. Analysis of this data indicated that the horizontal stabiliser electric pitch trim continually moved for six seconds, to an almost full nose down position, with the aircraft then departing controlled flight.

The owner of a similar aircraft disclosed that control stick forces on his aircraft are “very strong if out of trim”. He reported that on one occasion a passenger had an open book resting on top of the control stick. This activated the trim button and required a high input force on the control stick to maintain aircraft control.

On Rans S-19 aircraft the dual control sticks are floor mounted in front of the seats. Both control sticks are fitted with flush mounted electric trim buttons on top of the stick grip. The forward button activates the nose down trim and the aft button activates the nose up trim. The Push-to-Talk (PTT) button is located on the forward side of the control stick grip. For further details, refer to the photograph below.

Due to the design/configuration of the horizontal stabiliser electric pitch trim buttons located on the top of the control stick grip, with no protection from inadvertent trim commands, unintentional activation of the horizontal stabiliser electric pitch trim is possible. The CAA has brought this to the attention of the stick grip manufacturer.

With unintentional activation of the horizontal stabiliser electric pitch trim system and the sensitivity/speed of the electric trim, the trim system is capable of quickly trimming the aircraft into a state of an out of trim condition, which will require a significant input force on the control stick to maintain aircraft control. The aircraft manufacturer is aware of the considerable control stick force on affected aircraft in an out of trim condition.

Recommendation:

The intent of this CAN is to ensure that operators of affected aircraft are aware of the following:

- The ergonomic layout of the electric trim push buttons located on top of the control stick grip on affected aircraft offer no protection against inadvertent trim activation.
- The trim push buttons are also quite sensitive and only require a light touch to activate the electric trim.
- Due to possible inadvertent activation and the speed of the electric trim system, the trim system is capable of quickly trimming the aircraft into a state of an out of trim condition.
- Control stick forces can be significant in an out of trim condition.



The Ray Allen Company, G205 Stick Grip