



Airworthiness Bulletin

AWB 76-004 Issue 2 – 15 February 2024

Propeller Governor Control Cable Failure

An Airworthiness Bulletin is an advisory document that alerts, educates and makes recommendations about airworthiness matters. Recommendations in this bulletin are not mandatory.

1. Effectivity

Textron Aviation Inc. (Cessna) 208 Model Aeroplanes fitted with a Pratt & Whitney Canada PT6A model engine.

2. Purpose

To advise owners, registered operators, pilots, maintenance organisations and Licensed Aircraft Maintenance Engineers of an increased trend in reporting of damaged and/or fractured governor control cable linkages, (P/N 580-219-153).

At this time, the airworthiness concern described in this Airworthiness Bulletin is not considered an unsafe condition that would warrant an Airworthiness Directive to be issued under Part 39 of the Civil Aviation Safety Regulations 1998.

3. Background

During troubleshooting following an inflight event, the propeller governor control cable linkage was found sheared at the rod end locknut, (See Figure 1).

The operator undertook a fleet wide inspection and found an additional three (3) aircraft with this linkage bent but not sheared at the locknut, (See Figure 2).

Issue 2 of this Airworthiness Bulletin incorporates industry feedback on potential modes of cable mis-rigging.

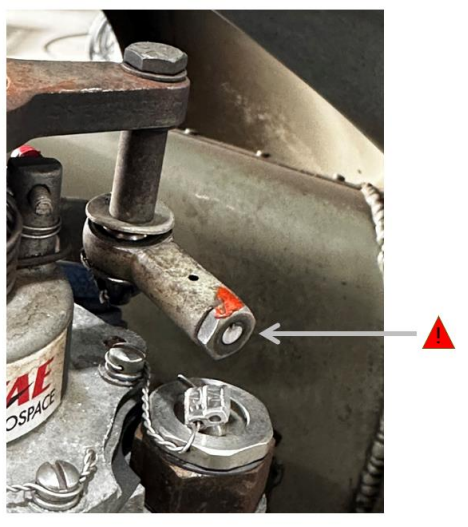


Figure 1. Failed governor control shaft.



Figure 2. Bent rod end of propeller governor control shaft.

4. Scheduled maintenance considerations

The AMM procedures for the '*Engine Controls Function Check*' includes a Detailed Inspection of related hardware, namely the propeller speed control cable from cockpit lever to governor lever. The level of disassembly required for the task may not expose the damage observed in Figure 2, however, the task does provide a maintenance opportunity at which operators could verify control cable serviceability.

For aircraft under a maintenance schedule that relies on the AMM's "Inspection Document 0A", this task is called up every 100 flight hours or annually, whichever occurs first.



For aircraft that follow the “Inspection Documents” listed in AMM Chapter 05-15 (e.g. under an Approved Maintenance Program), the task is called up within “Inspection Document No. 7” every 400 flight hours or annually, whichever occurs first.¹

5. Industry feedback on cable rigging

Extension of the cable beyond the intended limits of linear movement has the potential to cause damage similar to that shown in Figures 1 and 2 above.

Industry feedback subsequent to Issue 1 of this Airworthiness Bulletin has brought attention to at least two potential modes by which this cable might be mis-rigged. Operators and maintainers are encouraged to be vigilant of these modes and further report any in-service experience.

a. Propeller speed control lever in the cockpit

The AMM procedures for rigging the propeller governor control cable requires the LAME to adjust the cable mounting bracket fittings (located on the flange of the reduction gearbox) until there’s a cushion of between $\frac{1}{8}$ ” and $\frac{1}{4}$ ” at the propeller speed control lever in the cockpit, when the lever is at the ‘max RPM position’. See Figure 3 and 4 below.

One operator has reported findings across their fleet of almost $\frac{1}{2}$ ” cushion, well outside the limits stipulated in the AMM. Textron have provided the following clarification to the operator about the ‘cushion’ that is referred to in the AMM procedures:

“The system is designed with a primary and secondary stop. The primary stop is at the propeller governor and the secondary stop is at the throttle quadrant/pedestal. The word “cushion” as used in the AMM defines the distance measured between the lever and the secondary stop within the throttle quadrant/pedestal, when the speed adjustment lever at the propeller governor is against the max rpm stop or primary stop.”

Maintainers are also urged to consider the potential for changes to the cushion dimensions that might occur if the friction lock is subsequently adjusted. Where in doubt, further clarification can be sought from the Type Certificate holder, Textron Aviation Inc.

¹ AMM references, task scope, and task intervals are current as at AMM Document No D2078-13, Revision 13 dated 01-Mar-2023.

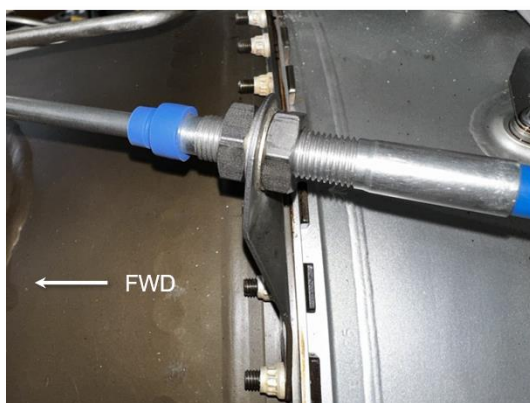


Figure 3. Cable mounting bracket fittings, located on the flange of the reduction gearbox

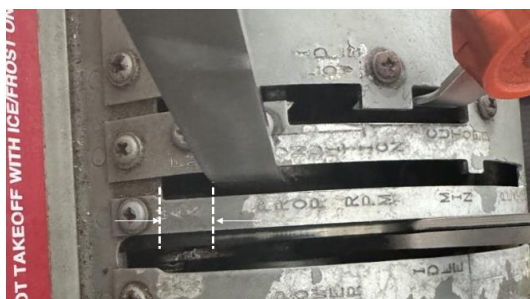


Figure 4. The 'cushion' of the propeller speed control lever

b. Speed-adjusting lever on the propeller governor

During assembly, the speed adjusting lever on the governor body must be installed onto a serrated shaft. The position of the lever on the shaft must ensure that clearance between the cable (including the rod-end) and governor body is maintained. See Figures 5 and 6 below.

The serrations on the shaft enables the lever to be positioned in 5-degree increments. If the lever is too far clockwise when held against the 'max RPM stop', the cable may be pulled into a position where the rod end contacts the governor. When correctly rigged, the rod end should not contact the governor body at any stage of the linear movement of the cable.

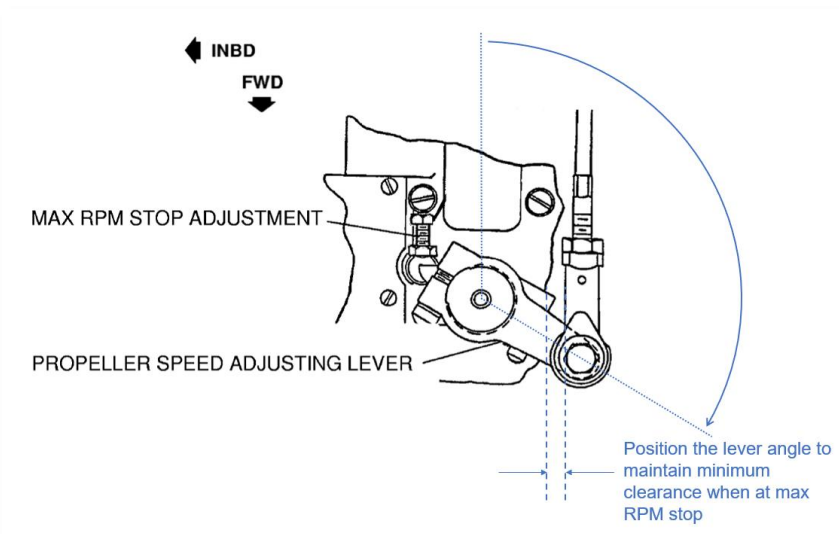


Figure 5. Top view drawing indicative of governor and cable rod end assembly.



Figure 6. Nil contact between the cable (including the rod end) and the governor body.

6. Recommendations

All operators should be aware of the potential for governor control cable linkage damage and consider undertaking specific interrogative maintenance to detect deterioration, prior to a potential in-service failure.

CASA highly recommends that:

1. Operators and licenced engineers pay particular attention to correct rigging procedures stipulated within the aircraft ICA and that push-pull rod ends are not extended beyond their linear movement.
2. Operators schedule a visual inspection of the governor linkages on their aircraft. Shafts with misaligned or bent ends should be replaced prior to further flight.



3. Operators should take into account their reliability data and in-service experience to schedule, where appropriate, periodic inspection and replacement of control cables to prevent unexpected failures.

7. Reporting

Any failures of engine control cables and any damage found during inspections must be reported to CASA as a major defect, under 51A of the Civil Aviation Regulations (1988) or 42.C.4 of the Civil Aviation Safety Regulations, as applicable. For further guidance on how to submit a report, refer to CASA Advisory Circular 20-06 which is available on the CASA website. The aircraft type certificate holder should also be notified to facilitate global monitoring of the issue.

8. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link email address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

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Civil Aviation Safety Authority
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