Modification of Propeller Governor P-W20-1 and P-W20-1S

Subject: Propeller Governor P-W20-1 and P-W20-1S.

Affected Aircraft: All aircraft with propeller governor P-W20-1 and/or P-W20-1S.

Serial Numbers of Affected Governors:

P-W20-1: 11G070, 11G071, 11G318, 12G348B, 13G232B, 13G233B, 13G621B, 13G622B, 13G729C.

P-W20-1S: 13G332B, 13G727B, 13G793B, 14G476B, 14G810C, 15G091B, 15G092B, 15G569C, 15G602C, 15G646C, 16G301C, 16G302C.

Action: Governor modification at Avia Propeller. Designation of the modified governor to be changed to P-940-1. Serial number to be kept unchanged.

Accomplishment: Before next flight.

A. Reason

(1) To improve wear resistance or failure tolerance of idler bearing in case of oil contamination, needle bearing is replaced by a plain bearing.

(2) The propeller governor Beta control (BC) lever is supported by engine beta control linkage. To fix mechanically the BC lever by non-flexible support at its end stop, electro-mechanic device is fixed to the propeller governor. This device unlocks BC lever by electric input from PCL (Power Control Lever) when it is moved to beta range.

(3) Beta switch P-S-2M is replaced by P-S-2C beta switch, installed at different position to reduce load of the carbon block.

(4) Modification of the governor has to be followed by modification of Power Control Lever (PCL) in the cockpit. PCL has to be equipped with beta enable switch. Activation of the switch will deactivate BC lever blocking, which allows to put PCL in BETA range. It is not possible to use beta/reverse range without it. The switch provides voltage to the solenoid, which releases BC lever of the governor. BC lever movement provides propeller beta control. As soon as the control enters into beta range, it is not necessary to keep the solenoid energized. After setting the forward mode of operation again, BC lever is automatically re-locked.

B. Accomplishment Instructions

(1) Modification of Propeller Governor

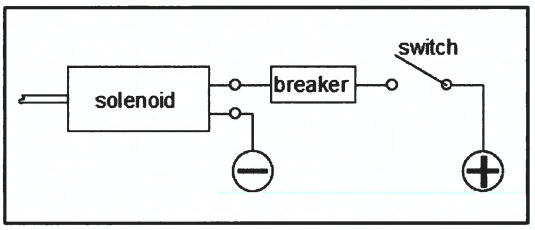
Modification of propeller governor P-W20-1 and/or P-W20-1S to be accomplished at the Avia Propeller.

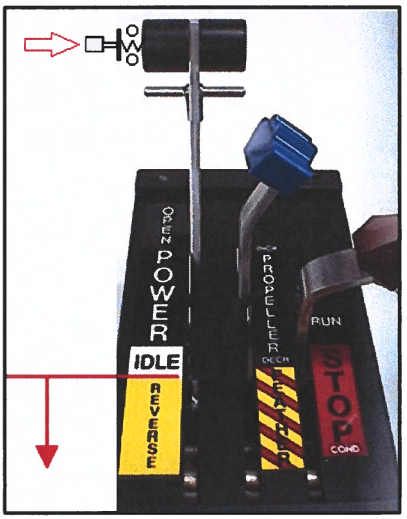
(2) Re-installation on the Engine

Re-install the propeller governor on the engine in accordance with the Avia Operation and Installation Manual EA-2386.

(3) Installation of Beta Blocking System

(a) Connect beta blocking mechanism solenoid with suitable "beta enable" switch (24 VDC, 2A), for example on PCL in cockpit. As soon as the switch is closed, it energized solenoid and the solenoid turns with blocking lever, enabling to use beta range of the propeller control. Once the PCL is moved in beta range, it is not necessary to keep the solenoid energized. When the PCL is moved back to flight position and the switch is de-energized, BC lever blocking mechanism is set to position, where it mechanically blocks BC lever against movement to beta range.





(b) Recommended mating connector for the solenoid: MS3476W8-98S (+ strain releaser M85049/52-1-8W).

(c) Aircraft supplied electrical power requirements: 24 / 28 VDC

C. Contact Information:

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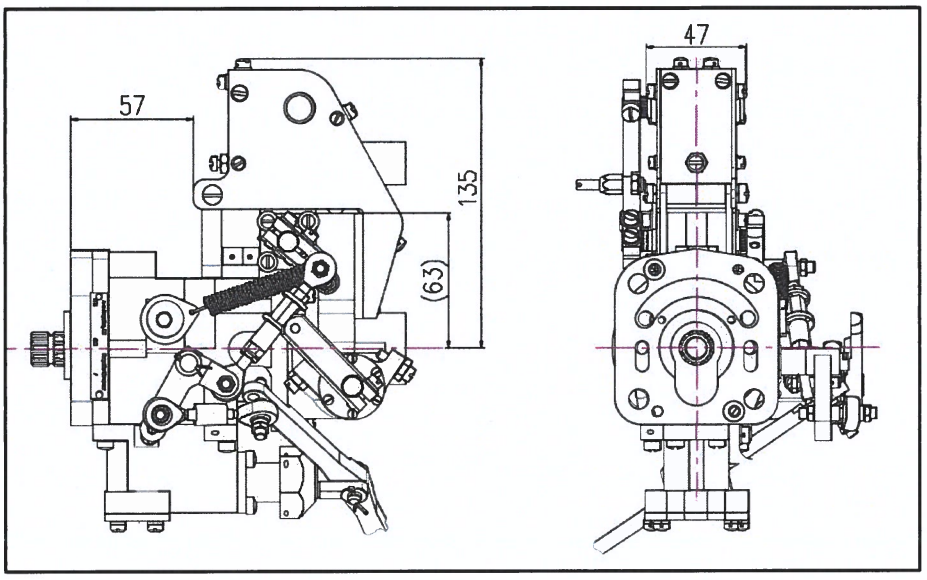
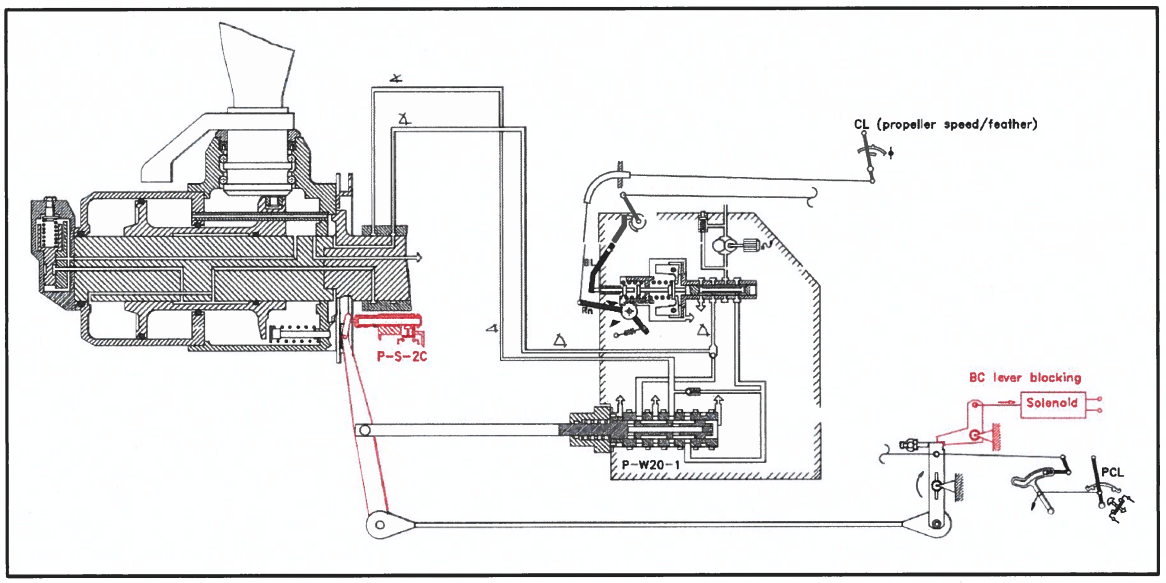


Dimensions of the beta control (BC lever) blocking



Modifications in red: beta switch, beta lever, BC lever blocking

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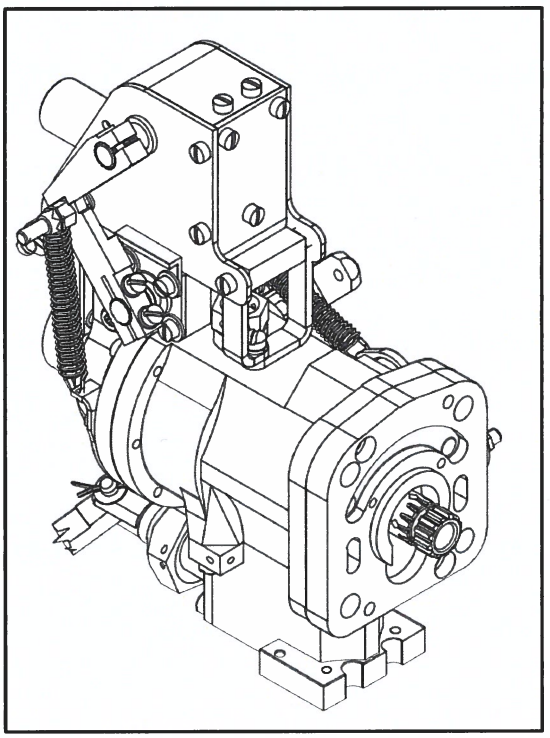
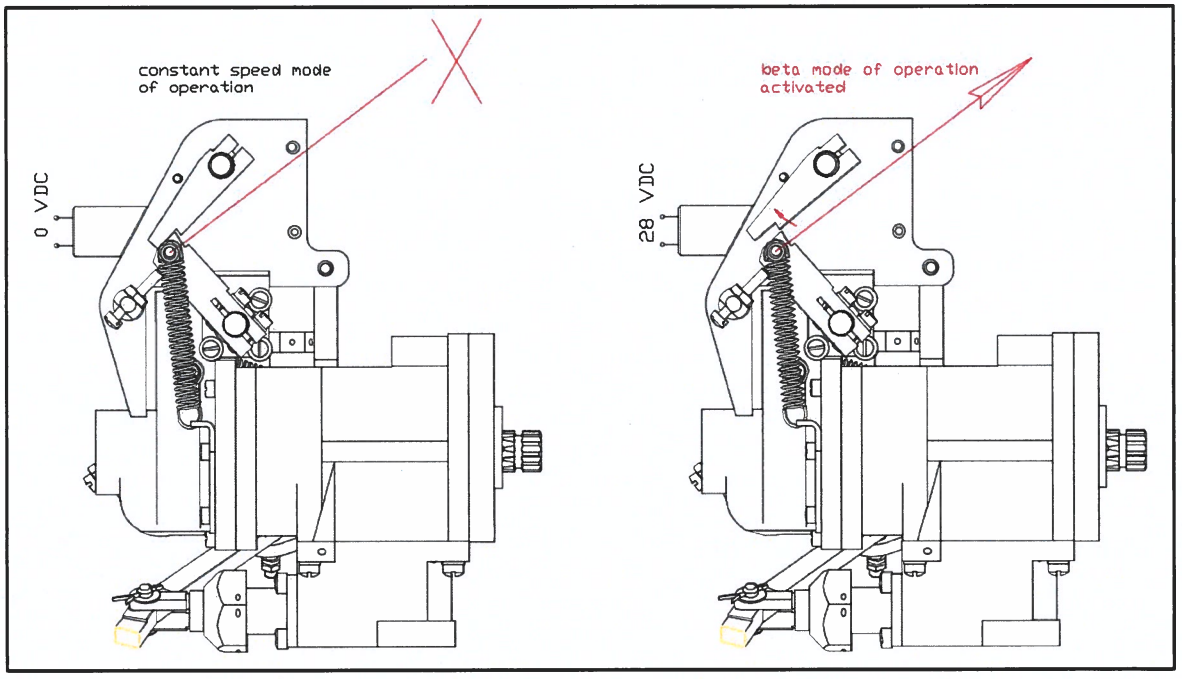
Replaces edition of: N/A



Propeller governor after modification



How the blocking works

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