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LETTER TO OWNERS/OPERATORS NO 2235 PIPER PA-28-181 AIRCRAFT AIRCRAFT AUTOPILOT/ELECTRIC TRIM SYSTEM OPERATION

Investigations into a fatal accident which occurred to a Cessna 182S aircraft shortly after take-off has indicated that the elevator trim tab was at, or very close to, the maximum nose up position. Although the investigation has yet to be completed, it is believed that the autopilot may have been inadvertently engaged during ground checks or upon opening the throttle for take-off. Alternatively the aircraft electric trim system may have operated as a result of autopilot engagement such that although the autopilot may have subsequently been disengaged prior to take-off, with full and free control movements being accomplished, the aircraft elevator may have been significantly out of trim.

Tests on a similar Cessna 182 aircraft equipped with a two-axis autopilot has shown that the electric trim system may motor to the full up or down position. It should be noted that the resulting out of trim loads will not be detected until airflow is available across the control surfaces and that the control column loads required to overcome these forces may exceed 60 lbf.

Where the autopilot control panel is located at or near the bottom of the installed avionic equipment stack caution should also be exercised when opening the throttle, operating the engine controls or setting radio aids to ensure that the autopilot is not inadvertently engaged prior to take-off.

The installation of a two axis autopilot configuration may be determined by the inclusion of an altitude hold and altitude and vertical rate adjustment buttons on the right hand side of the autopilot control panel.

As a result of this finding, and in anticipation of any further action that may result from the final report of the investigation, the CAA recommends owners/operators of the above aircraft type that are fitted with the Bendix/King KAP140 two axis autopilot and electric trim system, typically by installation of modifications under Supplemental Type Certificate (STC) SA00444W1-D, ensure that all pilots of the aircraft are fully aware of the system operating requirements and the emergency procedures. These are contained in the following documents:

Pilots Operating Handbook and FAA Approved Airplane Flight Manual Supplement No.6 for King KAP140 Series Flight Control System to Report VB-1611 dated 12 July 1995 and Revised 12 March 1998.

Bendix/King FAA Approved Flight Manual KAP140 Autopilot Supplement, reference 006-00850-0000 dated 21 March 1997, for the Piper PA28-181, serial numbers 2890206 thru 2890231, 2843001 and after (28v).

continued overleaf

These supplements include details of system operation and description, system limitations, emergency procedures and normal procedures and are complementary to the checklists and information within the flight manual itself. Particular attention should therefore be paid to the checklist items that require the electric trim system to be operated, the autopilot engaged, flight controls checked and the autopilot disengaged followed by manually resetting of the elevator trim to the take-off position. It is also vital that the elevator trim should be given a final check immediately prior to take-off to ensure that it is within the take-off range.

Enquiries regarding this LTO should be referred to Mr J McKenna, Applications and Certification Section (Telephone No 01293 573157) at the above address.

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Applications and Certification Section