CAMERA INSTALLATIONS

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INTRODUCTION

With the availability of lighter, cheaper cameras it's natural that owners will consider installing such a device to record their aviation adventures. This leaflet describes how camera installations are dealt with in the LAA system.

SCOPE

This leaflet supplements CAA CAP 1369, Policy and Guidance on Mounting Cameras on Aircraft, and specifically covers small, light cameras attached to LAA aircraft, such as GoPro units. Installations that are not described here should be referred to LAA Engineering and are likely to require a modification application using form MOD2.

Devices that are attached to the pilot (e.g. helmet-mounted cameras) don't need any particular approval, although common sense should be used to ensure that they don't pose unnecessary additional risks to the aircraft occupants. For instance, you might think about how it might affect your ability to get out of the aircraft in an emergency, whether it affects your ability to fly the aircraft normally and, not least, where it might go if it falls off!

REQUIREMENTS

1. The camera must be self-contained (built-in batteries, etc) and of low overall mass (<250g).
2. The camera is to be mounted on fixed surfaces on the aircraft only, e.g. not on control surfaces, and well clear of the propeller and any moving part (e.g. parts of the control system).
3. The camera is to be mounted clear of any system inlet ports or vents. For example, clear of venturis, the pitot-static system (not adjacent to the pitot tube or static vents), and not near fuel or oil vent outlets, to ensure that local flow disturbance will not affect these systems on the aircraft. The camera will not be positioned such that it might impede cooling outlet air from the cowling.
4. Due regard is to be taken to the effect of the camera on the handling of the aircraft. For example, the size of the control surfaces in relation to the size of the camera will determine if it's likely it will significantly affect the handling qualities.
5. The camera attachments will be subjected to proof-load testing to 4.5 lbf (2 kg) in the drag direction prior to flight.
6. Appropriate secondary locking of connections will be applied, e.g. nyloc nuts.
7. Typical planned location points are interplane strut, undercarriage leg strut, tailplane leading edge, fin leading edge, cabane strut.
8. Where structural bolts are affected by the change, it will be ensured that any bracket installed will be of the same material used for the affected underlying structure (e.g. 4130N), the bolt will be lengthened as necessary to remain in safety, no bracket will be introduced as a packer between major load paths, e.g. where the bracket would act as a washer under the bolt head or nut. The size of the bolt will be taken into consideration. Any disturbed bolt will be inspected prior to flight by an LAA inspector.
9. Proprietary self-adhesive mounts may be used in accordance with the manufacturer's instructions except that they may only be used in positions where no harm will be done to the occupants, propeller, structure or controls/control horns should the unit become detached. Manufacturers' claims and assurances, and the solid feel of a suction mount in the comfort of the hangar, matter little against the force of the hurricane-strength airflow over your aircraft.
10. If the camera is mounted in the cockpit using suction or self-adhesive mounts, the camera must also be attached to the structure by a backup lanyard.
11. The mountings of cameras located in the cockpit, and any backup lanyard, must be strong enough to withstand a force of at least 9 times the weight of the camera and mount forwards, 4.5 times the weight upwards, 6 times the weight downwards and 3 times the weight to port and starboard.

APPROVAL

Installations conforming to the requirements above must be checked prior to flight by an LAA inspector that they meet the requirements, and the inspector must then sign a Permit Maintenance Release (see TL2.04) in the airframe logbook to that effect, quoting that the installation has been fitted in accordance with TL 3.24 issue 1.

Initial flights with the camera in place must be carried out with due caution. For externally mounted cameras, this should include checking whether the installation has any effects on the flight handling or control feel, buffet, vibration, stall characteristics, high speed flight, etc. Check the behaviour of the aircraft in normal flight prior to any aerobatic flight. In the event that adverse effects are determined the installation must be removed.

Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com