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HEAD PROTECTION DURING CERTAIN AVIATION OPERATIONS IN LIGHT AIRCRAFT AND BALLOONS**1 Introduction**

1.1 Activities involving low level flight carry an increased risk of collision with obstacles and/or the surface, especially in the event of loss of engine power. Such activities include agricultural aviation, pipeline and powerline inspections, police surveillance operations, air displays and some aspects of air racing. This list is not exhaustive and, for example, operation of hot air balloons on occasions involves hard or fast landings which can cause injuries to occupants. Occupants of open cockpit aeroplanes are also vulnerable in the event of even a minor accident.

2 Pilots and crews involved in low level operations should give serious consideration to the benefits of wearing protective helmets as even a minor impact to the head, transmitted through the skull, can result in loss of consciousness, serious injury or death. Any temporary incapacitation which might result could inhibit an occupant from making any effort to escape from an aircraft, particularly in the event of any fire following an accident. Similarly, loss of consciousness following impact with water in a crash, or ditching, could increase the risk of drowning.

3 Most hang glider pilots and parachutists wear protective helmets, but their use by pilots and crews in other aviation activities is less common.

4 In previous years there have been at least 5 fatal accidents as a result of aerobatics where investigators have concluded that death might have been avoided had the occupants been wearing suitable head protection. Other aerobatic accidents have occurred where serious head injuries have been sustained by unprotected occupants. There have also been cases where the wearing of a protective helmet has prevented serious injury to the occupants of open cockpit aeroplanes involved in accidents.

5 Helmet Requirements

5.1 The following design features should be considered before selecting a particular helmet:

- (a) The outer shell should be designed to withstand and deflect point impact forces;
- (b) shock absorbing material of suitable density should be provided on the inner surface;
- (c) for use in hot air balloons, the helmet material should not be degraded by reflected heat from the burner;
- (d) adequate means of fastening the helmet should be provided so that the helmet stays in place in the event of an accident;
- (e) if appropriate, suitable visors should be incorporated or alternative eye protection provided;
- (f) the helmet assembly should be a good fit and, if possible, capable of minor adjustment to improve security and comfort;
- (g) the helmet should be light enough so that it can be worn without fatigue or discomfort for the necessary time. In some cases, allowance should be made for anticipated 'G' loading;
- (h) communications equipment, where required, should be provided as part of the helmet.

6 Suitable helmets meeting the listed considerations are available and the cost is modest when set against the increase in protection offered.

7 The Civil Aviation Authority strongly recommends the wearing of protective helmets by the occupants of open cockpit aircraft, or of any aircraft, including balloons, engaged in activities where there is an increased risk of collision with the surface or obstacles.

This Circular is issued for information, guidance and necessary action.