

**DEPARTMENT OF CIVIL AVIATION
MALAYSIA
AIRWORTHINESS NOTICE**

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Date: 1 September 1994

ELECTRICAL POWER SUPPLIES - LIGHT AIRCRAFT, CARE AND MAINTENANCE

1. Investigations into incidents involving total loss of electrical power supplies on light aircraft have shown that insufficient care was taken in the maintenance of the major components of the electrical system.
2. It would appear that not everybody is sufficiently aware that a single fault, or a single fault plus a dormant fault, may cause the loss of electrical supplies. For example:
 - (a) If the battery becomes disconnected from a generation system using 'commercial' type alternators, instability may occur with the subsequent loss, of the output of both alternators and result in the aircraft becoming electrically 'dead'.
 - (b) On a twin-engined aircraft a slack drive belt may operate quite adequately when both generators / alternators (generator) are sharing the load, but may slip should the other generator fail, with the resultant loss of output from both; leaving the electrical supplies dependent on the battery. On a single-engined aircraft the belt may slip with increasing electrical load on the system with similar results.
 - (c) Faults in the load-sharing system may affect both generators, possibly to such an extent as to result in the loss of output from them both.
3. While there are, obviously many, other faults which may result in generation failures, these examples are quoted since they have occurred a number of times in service.
4. It is useful to remember that should both generators fail and difficulty be experienced in re-setting, it may be possible to re-set one of them by reducing the electrical load to a minimum. Having re-set one, it is advisable not to attempt to re-set the other, since this may cause permanent loss of the output of both.
5. The attention of Owners and Operators is drawn to the necessity for ensuring that the following items are checked periodically:
 - (a) The battery and its control relay must be correctly installed, and the battery terminals must be free from corrosion and correctly tightened.
 - (b) Voltage settings and load sharing adjustment (where applicable) must be correct.
 - (c) All cable connections must be secure with locking devices in place and with end fittings showing no signs of fatigue fracture or corrosion. Earth connections are equally as important as the positive connections.
 - (d) Drive belts for generators must be checked to ensure that they are in good condition and correctly tensioned.
6. It is recommended that these checks should be carried out approximately 100 flying hours or three months whichever is the sooner. The appropriate Maintenance Schedules should be reviewed and where necessary adjusted to take into account of these recommendations.
7. The operation of the appropriate indicators and failure warning devices should be checked daily or during the pre-flight drill.
8. Whilst the DCA considers that to require mandatory modification action is not justified and that the situation should be contained by the diligent application of maintenance procedures, Owners and Operators may nevertheless wish to consider modifications to improve the reliability of their own particular aircraft by, for example, the introduction of an emergency battery to act as a power source for vital services should the main electrical system fail. Such batteries have already been introduced on certain aircraft, and installation information is available.

DIRECTOR GENERAL
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