

ADVISORY CIRCULAR



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: REDUCTION OF ELECTRICAL SYSTEM FAILURES FOLLOWING AIRCRAFT ENGINE STARTING

1. **PURPOSE.** This advisory circular is to warn general aviation aircraft owners/pilots and maintenance personnel of possible total electrical system failure following aircraft engine starting.

2. **BACKGROUND.** This advisory circular is being issued in response to a safety recommendation made by the National Transportation Safety Board to the Federal Aviation Administration. Aircraft accidents and incidents have occurred shortly after takeoff because the starter relay (solenoid) failed mechanically in the "on" position. This condition causes the starter to run, and if allowed to continue, can result in electrical system overload, overheating of components, and in some cases complete failure of the electrical system and/or destruction of the starter motor and drive assembly. Destruction of the starter drive shaft and gear assembly may also damage the aircraft engine.

3. **SAFETY SUGGESTIONS.** During maintenance activities, inspect the starter motor, electrical cables, and starter relay areas for evidence of overheating and damage. In addition, a good practice for pilots is to be completely familiar with instrument readings, cockpit sounds, and other indicators following normal engine starting periods. Indications that problems are developing in the starter system could be low voltage, high

ammeter or loadmeter readings, dimming of lights, or excessive noise in radio receivers. A noted change in such known normal conditions could indicate prolonged starter motor running and the engine should be shutdown. No further flight operations should be attempted until the cause is determined and repaired.



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