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SERVICE LETTER NO 7 PITTS MODEL S-2A

SUBJECT: Lycoming IO-360-A1A engine; in-flight vapor lock avoidance.

DISCUSSION: We have recently learned that under certain circumstances it is possible for the IO-360-A1A engine to exhibit symptoms of vapor lock, and on some occasions to quit in-flight. This behavior is not limited to the IO-360-A1A engine installation on the Pitts S-2A; the same thing has been observed in airplanes employed by the Swedish Air Force, and by the British Royal Air Force, which use the same engine.

In each case, the engine stoppages had these factors in common:

1. Hot ambient outside temperature;
2. Maneuvers at high power settings;
3. Followed by power reduction to low power settings, as steep high approachesfor landing, steep sideslips, or multi-turn spins, with low airflow through the cowling.

RECOMMENDATIONS: As a result of the foregoing, we believe that the following procedures should be followed:

a) Prolonged spins,(more than six turns), should either be avoided, or performed with sufficent altitude to insure in-flight engine restarting. Review this procedure in the model S-2A airplane flight manual.

b) On hot days, after aerobatic maneuvers at high powers, descents and landing approaches should be made at relatively high powers to maintain high fuel flows, and thus avoid fuel in the lines and distribution block on tbp of the engine heating to the vaporization point.

c) When practicing forced landings, when low fuel flow conditions exist,care should be taken to check engine reponse frequently, and when engine temperatures are at the high end of their limits,such pratice should be avoided unless performed at fields where it is assured that successful forced landings can be made.

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