
AIRWORTHINESS DIRECTIVE

On the effective date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below repeals Airworthiness Directive (AD) AD/LYC/89 Amdt 3 and issues the following AD under subregulation 39.001 (1) of CASR 1998 and subsection 33 (3) of the *Acts Interpretation Act 1901*. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct an unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

Lycoming Piston Engines

**AD/LYC/89
Amdt 4**

Crankshaft Gear

20/2014

Applicability: This Airworthiness Directive (AD) applies to all Textron Lycoming direct drive piston engines; excepting the O-145, O-320H, O-360E, LO-360E, LTO-360E, TO-360E, O-435 and TIO-541 series engines.

Requirements:

1. Inspect, and if necessary repair, the crankshaft counter bored recess, the alignment dowel, the bolt hole threads, and the crankshaft gear for wear, galling, corrosion, and fretting in accordance with Lycoming Mandatory Service Bulletin No. 475C dated 30 January 2003 (*MSB No. 475C*) or later revision approved by the United States of America Federal Aviation Administration (*FAA*).
2. Remove the existing gear retaining bolt and lockplate from service, and install a new bolt and lockplate, in accordance with Lycoming MSB No. 475C or later revision approved by FAA.
3. Do not install into any engine the gear retaining bolt and lockplate removed in compliance with this AD.

Note: FAA AD 2004-10-14 Amendment 39-13644 refers.

Compliance:

1. The actions in Requirements 1, 2 and 3 must be taken at each removal of the engine following a propeller strike event.

For the purpose of this AD, a propeller strike event is defined as follows:

- (a) Any incident, whether or not the engine is operating, that requires repair to the propeller other than minor dressing of the blades.
- (b) Any incident during engine operation in which the propeller impacts a solid object that causes a drop in revolutions per minute (*RPM*) and also requires structural repair of the propeller (incidents requiring only paint touch-up are not included). This is not restricted to propeller strikes against the ground.
- (c) A sudden RPM drop while impacting water, tall grass, or similar yielding medium, where propeller damage is not normally incurred.

Lycoming Piston Engines

AD/LYC/89 Amdt 4 (continued)

- (d) The preceding definitions include situations where an aircraft is stationary and the landing gear collapses causing one or more blades to be substantially bent, or where a hanger door (or other object) strikes the propeller blade. These cases should be handled as sudden stoppages because of potentially severe side loading on the crankshaft flange, front bearing, and seal.

The effective date of this AD is 26 September 2014.

Background: This AD was originally issued in December 1991 to require the inspection, rework or replacement of the crankshaft drive gear, and the replacement of the crankshaft drive gear retainer bolt, at each removal of the crankshaft gear.

AD/LYC/89 Amdt 1, which became effective on 6 January 1994, was issued to reflect revision B of Lycoming Mandatory Service Bulletin No. 475, which increased the number of engine models applicable.

AD/LYC/89 Amdt 2, which became effective on 2 October 2003, was issued to reflect revision C of Lycoming Mandatory Service Bulletin No. 475, which revised details on crankshaft gears.

AD/LYC/89 Amdt 3, which became effective on 30 September 2004, was issued to reflect the changes introduced by FAA AD 2004-10-14 Amendment 39-13644, superseding FAA AD 91-14-22 Amendment 39-6916.

This AD, AD/LYC/89 Amdt 4, amends the compliance statement to more accurately reflect the circumstances which constitute a propeller strike event.



Mike Higgins
Delegate of the Civil Aviation Safety Authority

24 September 2014