

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [64 FR 6516 NO. 27 02/10/99]

[Docket No. 98-ANE-81-AD; Amendment 39-11028; AD 99-04-04]

RIN 2120-AA64

Airworthiness Directives; Textron Lycoming Reciprocating Engines IO-540 and O-540 Engines Equipped With Slick Aircraft Products Magnetos

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to Textron Lycoming IO-540 and O-540 engines equipped with Slick Aircraft Products magnetos. This action requires removal of the Slick magneto from the engine and inspection of the impulse coupling pawl for wear. This amendment is prompted by several service difficulty reports, two incidents, and an accident involving severely worn and failed impulse couplings. The actions specified in this AD are intended to prevent failure of the magneto impulse coupling, resulting in seizure of the engine.

DATES: Effective February 25, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of February 25, 1999. Comments for inclusion in the Rules Docket must be received on or before April 12, 1999.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 98-ANE-81-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet using the following address: "9-ad-engineprop@faa.gov." Comments sent via the Internet must contain the docket number in the subject line. The service information referenced in this AD may be obtained from Textron Lycoming, 652 Oliver Street, Williamsport, PA 17701. This information may be examined at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Rocco Viselli, Aerospace Engineer, New York Aircraft Certification Office, FAA, Engine & Propeller Directorate, 10 Fifth Street, 3rd Floor, Valley Stream, NY 11581-1200; telephone (516) 256-7531, fax (516) 568-2716.

SUPPLEMENTARY INFORMATION: The Federal Aviation Administration (FAA) has received numerous reports of failure of the impulse coupling pawl on Slick Aircraft

Products magnetos installed on certain Textron Lycoming IO-540 and O-540 engines that resulted in seizure of the engine. In one accident, a Piper Cherokee Six airplane equipped with a Textron Lycoming IO-540 series engine experienced an engine failure. The left magneto, Slick model number 6531, equipped with impulse coupling Slick P/N M3333, seized within the housing. The seizure of the left magneto caused the gear drive train to fail. The failure of the gear drive train caused the right magneto to stop operating, which caused the engine to stop. In one incident, a magneto seized when one pawl jammed under the second pawl due to a loose or broken rivet. The seizure resulted in a forced landing. In another incident, a Piper PA-32 experienced a reduction in engine power while in cruise flight. Examination of the engine revealed that the left magneto coupling drive gear had disintegrated and sheared several drive gear teeth. There have also been a number of Service Difficulty Reports of severely worn and failed impulse couplings on certain Textron Lycoming O-540 and IO-540 series reciprocating engines equipped with Slick Aircraft Products magneto model numbers 6251, 6252, 6255, 6351 and 6355. Investigation results suggest that excessive vibration or radial forces acting on the impulse coupling assembly may be causing unusually rapid wear of the impulse coupling pawl. In these cases, the impulse coupling may improperly engage the stop pins when the engine is operating, and cause damage to the accessory drive gear and impulse coupling. Possible causes of failed impulse couplings that are currently under investigation include unusually rapid wear due to excessive vibratory forces, improper crankcase overhaul in magneto bore location, and lack of routine magneto inspection and maintenance. This condition, if not corrected, could result in failure of the magneto impulse coupling, resulting in seizure of the engine. The FAA has reviewed and approved the technical contents of Textron Lycoming Mandatory Service Bulletin (SB) No. 537, dated November 20, 1998. Textron Lycoming SB No. 537 reprints the Slick Aircraft Product SB SB1-98, dated August 26, 1998, that describes procedures for the inspection of the impulse coupling pawls for wear and proper operation and, if necessary, replacement of the impulse coupling assembly. Since an unsafe condition has been identified that is likely to exist or develop on certain other Textron Lycoming IO-540 and O-540 engines of the same type design, this AD is being issued to prevent failure of the magneto impulse coupling, resulting in seizure of the engine. This AD requires an initial inspection of the magneto impulse coupling assembly pawls for wear either within the next 10 hours of time in service (TIS) from the effective date of this AD if the magneto has been in service for more than 250 hours TIS since new or overhauled or if the service history of the magneto is unknown, or within the next 10 hours of TIS from the effective date of this AD or by 250 hours TIS since new or overhauled whichever is later if the magneto has been in service for less than 250 hours TIS since new or overhauled; and then repetitive inspections every 250 hours TIS from the last inspection or overhaul of the magneto. The actions are required to be accomplished in accordance with the SB described previously. A final, terminating action cannot be defined until the investigation is completed. Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days. Comments Invited Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES."

All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed. Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule.

All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 98-ANE-81-AD." The postcard will be date stamped and returned to the commenter. The regulations adopted herein will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

# AIRWORTHINESS DIRECTIVE

Aircraft Certification Service  
Washington, DC



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference FAR Subpart 39.3).

**99-04-04 Textron Lycoming:** Amendment 39-11028. Docket 98-ANE-81-AD.

Applicability: Textron Lycoming O-540-B2B5, B2C5, E4B5, E4C5, G1A5, G2A5, IO-540-K1A5, K1B5, and K1G5 reciprocating model engines equipped with Slick Aircraft Products magneto model numbers 6251, 6252, 6255, 6351 and 6355.

These engines are installed on, but not limited to, the following airplanes: Britten Norman BN-2A, -2A-2, -2A-3, -2A-6, -2A-9, -2A-20, -2A-21, -2A-26, -2A-27, -2A-MKIII, -2A- MKIII-2, -2A- MKIII-3, -2B-20, -2B-21, -2B-26, -2B-27 and Piper PA-25-235, PA-25-260, PA-32-260, PA-32-300.

Note 1: This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent failure of the magneto impulse coupling, resulting in seizure of the engine, accomplish the following:

(a) For engines on which the service history of the magneto is not known, or on which the magneto has greater than 250 hours TIS since new, factory rebuilt, or overhauled, on the effective date of this AD, within 10 hours of the effective date of this AD, inspect the components of the magneto impulse coupling for the conditions listed in accordance with steps 1 through 7 of the Textron Lycoming Mandatory SB No. 537, dated November 20, 1998.

Note 2: The Textron Lycoming Mandatory SB No. 537 dated November 20, 1998 contains the Slick SB No. SB1-98 dated August 26, 1998 in its entirety. The steps referenced to the Textron Lycoming SB No. 537 dated November 20, 1998 by this compliance section are the same steps that are contained in the Slick SB No. SB1-98 dated August 26, 1998.

(b) For engines on which the magneto has less than or equal to 250 hours TIS since new, factory rebuilt, overhauled on the effective date of this AD, before accumulating 250 hours TIS since new, factory rebuilt or overhauled, or within 10 hours TIS from the effective date of this AD, whichever comes later, inspect the components of the magneto impulse coupling for the conditions listed in accordance with steps 1 through 7 of the Textron Lycoming Mandatory SB No. 537, dated November 20, 1998.

(c) Thereafter, at intervals not to exceed 250 hours TIS since the last inspection performed in accordance with this AD, inspect the components of the magneto impulse coupling for the conditions listed in accordance steps 1 through 7 of the Textron Lycoming Mandatory SB No. 537, dated November 20, 1998.

(d) Remove magneto impulse coupling before 2,000 hours TIS since new and replace with a serviceable part.

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, New York Aircraft Certification Office. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, New York Aircraft Certification Office.

Note 3: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the New York Aircraft Certification Office.

(f) The inspection shall be done in accordance with the following Textron Lycoming Mandatory SB:

Document No	Pages	Revision	Date
SB No. 537	1-9	Original	November 20, 1998
Total pages: 9.			

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Textron Lycoming, 652 Oliver Street, Williamsport, PA 17701. Copies may be inspected at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(g) This amendment becomes effective on February 25, 1999.