

### Structural Design and Loads Criteria

An analysis of world championship acrobatic sequences shows a significant number of occurrences of high load factors up to  $\pm 10g$ .

### Wing

For airplanes capable of performing "flick rolls" (snap rolls), the wing should be designed for 100/0 percent maximum wing load distribution, in addition to the roll maneuver criteria of § 23.349(b), unless lower values can be substantiated. These load conditions are based on a  $V_A$  and  $C_{r\max}$  corresponding to the selected positive 10g design load factor. Unbalanced aerodynamic moments about the center of gravity must be reacted in a rational or conservative manner, considering the principal masses furnishing the reacting inertia forces. Furthermore, consideration should be given to the fact that pilots may make significant aileron control input above  $V_A$ ; therefore, a warning prohibiting unrestricted control system input above  $V_A$  should be included in the Pilot Operating Handbook/Airplane Flight Manual (POH/AFM) and on a cockpit placard.

### Empennage

For airplanes capable of performing "flick rolls" (snap rolls), the empennage should be designed for 100/0 percent maximum load distribution unless lower values can be substantiated. The use of rational flight test results is preferred as a basis for design. Pilots may make significant rudder and elevator controls inputs above  $V_A$ , therefore, adequate pilot warnings such as discussed above are necessary.

Rational chord load distributions should be used for the vertical and horizontal tail surfaces. These may be developed by flight test data, wind tunnel test data, theoretical analysis, or a combination thereof.

### Gyroscopic Forces

Since the airplane will be performing maneuvers that generate high pitch and yaw rates, the airplane, including the engine, engine mount, and fuselage attachment, must be designed for rational gyroscopic forces generated in specific acrobatic maneuvers.

### Fatigue

The fatigue load should be developed from representative sequences and cross country flight profiles.

### Applicability

As discussed above, these special conditions are applicable to the Model CAP 222. Should CAP Aviation apply at a later date for a change to the type

certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

### Conclusion

This action affects only certain novel or unusual design features on the CAP Model 222 airplane. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

### List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

### Citation

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(g), 40113 and 44701; 14 CFR 21.16 and 21.17; and 14 CFR 11.28 and 11.29(b).

### The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for CAP Model 222 airplanes.

### Structural Design and Loads Criteria

1. *Wing.* For the "flick roll" condition in § 23.347(b), a 100/0 percent wing load distribution should be used for wing design. Accurate flight test load measurements may be used in lieu of the 100/0 percent maximum airload distribution. A notation shall be placed in the Limitations Section of the POH/AFM, and an appropriate warning placard shall be installed on the main instrument panel prohibiting full or abrupt control inputs above  $V_A$ .

2. *Empennage.* The horizontal tail and its attachments to the fuselage, and the aft fuselage must be designed for the worst case load condition using either accurate flight test load measurements or an acceptable analytical method. Unsymmetrical load combinations acting on the wing and on the horizontal tail are assumed to be turning the airplane in the same direction around the roll axis. A notation shall be placed in the limitation section of the POH/AFM, and an appropriate warning placard shall be installed on the main instrument panel prohibiting full or abrupt control inputs above  $V_A$ . Rational chord load distributions should be used for the vertical and horizontal tail surfaces. Appropriate data must be used to develop unsymmetrical loading of the horizontal tail surface and as a basis for fuselage torsion. This must include

simultaneous application of full rudder and elevator input.

3. *Gyroscopic Forces.* The airplane, including the engine, engine mount, and fuselage attachment, must be designed for rational gyroscopic forces generated in acrobatic maneuvers.

4. *Fatigue.* Representative acrobatic sequences and cross-country flight profiles must be used in establishing a rational fatigue load spectrum.

Issued in Kansas City, Missouri on February 21, 2002.

**Michael Gallagher,**

*Manager, Small Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 02-5812 Filed 3-8-02; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 92-ANE-56-AD]

RIN 2120-AA64

### Airworthiness Directives; Textron Lycoming Division, AVCO Corporation Fuel Injected Reciprocating Engines

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This document proposes the superseding of an existing airworthiness directive (AD), applicable to certain Textron Lycoming fuel injected reciprocating engines, that currently requires inspection, and replacement if necessary, of externally mounted fuel injector fuel lines. Since the issuance of the existing AD, additional engine series have been identified with the potential for the same problem and necessitate being included in the list of Textron Lycoming fuel injected reciprocating engine series, to the AD's applicability. This proposal is prompted by the need to ensure that the additional Textron Lycoming fuel injected engine series listed in this proposed rule receive the same inspections as series covered by the current AD. The actions specified by the proposed AD are intended to prevent failure of the fuel injector fuel lines allowing fuel to spray into the engine compartment, resulting in an engine fire.

**DATES:** Comments must be received by May 10, 2002.

**ADDRESSES:** Submit comments to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules

Docket No. 92-ANE-56-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet using the following address: "9-ane-adcomment@faa.gov". Comments sent via the Internet must contain the docket number in the subject line. Comments may be inspected at this location between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. The service information referenced in the proposed rule may be obtained from Textron Lycoming, 652 Oliver Street, Williamsport, PA 17701, telephone: (570) 323-6181. This information may be examined at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

**FOR FURTHER INFORMATION CONTACT:** Norman Perenson, Aerospace Engineer, New York Aircraft Certification Office, FAA, Engine and Propeller Directorate, 10 Fifth Street, 3rd floor, Valley Stream, NY 11581-1200; telephone: (516) 256-7537, fax: (516) 568-2716.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this action may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed 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 summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 92-ANE-56-AD." The postcard will be date stamped and returned to the commenter.

**Availability of NPRM's**

Any person may obtain a copy of this NPRM by submitting a request to the

FAA, New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 92-ANE-56-AD, 12 New England Executive Park, Burlington, MA 01803-5299.

**Discussion**

On June 5, 1992, the FAA issued a priority letter AD 92-12-10, applicable only to Textron Lycoming Series TIO-540-S1AD engines, which requires inspecting, and if necessary, replacing the externally mounted fuel injector fuel lines. The FAA subsequently determined that similar externally mounted fuel injector fuel line configurations existed on other Textron Lycoming fuel injected engines. Since an unsafe condition was identified that was likely to exist or develop on other Textron Lycoming engines of the same type design, the FAA issued AD 93-02-05, Amendment 39-8487 (58 FR 26056, dated April 30, 1993), to require inspecting, and if necessary replacing, the fuel injector fuel lines. That action was prompted by reports of failures of fuel injector fuel lines that were missing support clamps. The requirements of that AD were intended to prevent failure of the fuel injector fuel lines allowing fuel to spray into the engine compartment, resulting in an engine fire.

Since that AD was issued, the FAA has identified models AEIO-320, AIO-320, IO-320, LIO-320, AEIO-360, AIO-360, HIO-360, IO-360, IVO-360, LIO-360, TIO-360, IGO-480, AEIO-540, IGO-540, IO-540, IVO-540, LTIO-540, TIO-540, TIVO-540, and IO-720 series engines that require inspecting, and if necessary replacing externally mounted fuel lines.

**Service Information**

The FAA has reviewed and approved the technical contents of Textron Lycoming Mandatory Service Bulletin (MSB) No. 342D, dated July 10, 2001, that describes procedures for inspecting, and if necessary replacing the fuel injector fuel lines. Textron Lycoming MSB No. 342D supersedes Textron Lycoming MSB No. 342C, MSB No. 342B, Supplement No. 1 to MSB 342B, MSB 342A, and MSB 342.

**Proposed Actions**

Since an unsafe condition has been identified that is likely to exist or develop on other Textron Lycoming engines of this same type design, the proposed AD would supersede AD 93-02-05 to add additional Textron Lycoming engine models to the applicability of the AD. The actions would be required to be done in

accordance with the service bulletin described previously.

**Economic Analysis**

There are about 4,160 engines of the affected design in the worldwide fleet. The FAA estimates that 2,496 engines installed on aircraft of U.S. registry would be affected by this proposed AD, that it would take about 1 work hour to inspect and replace all lines on a four-cylinder engine, 1.5 work hours to inspect and replace all lines on a six-cylinder engine, and 2 hours to inspect and replace all lines on an eight-cylinder engine, and that the average labor rate is \$60 per work hour. Required parts would cost about \$440.00 for a four-cylinder engine, \$660.00 for a six-cylinder engine, and \$880.00 for an eight-cylinder engine. Based on these figures, the total cost per airplane of the proposed AD on U.S. operators is estimated as follows:

- \$500.00 for a four-cylinder engine.
- \$750.00 for a six-cylinder engine.
- \$1000.00 for an eight-cylinder engine.

**Regulatory Analysis**

This proposal does not have federalism implications, as defined in Executive Order 13132, because it would not have a substantial direct effect 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this proposal.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption **ADDRESSES**.

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

Air transportation, Aircraft, Aviation safety, Safety.

**The Proposed Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation

Administration proposes to amend 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 removing Amendment 39-8487 (58 26056, April 30, 1993), and by adding a new airworthiness directive, to read as follows:

**Textron Lycoming Division, AVCO Corporation** Docket No. 92-ANE-56-AD. Supersedes AD 93-02-05, Amendment 39-8487.

#### Applicability

Textron Lycoming fuel injected reciprocating engines incorporating externally mounted fuel injection lines as listed in the following Table 1:

TABLE 1.—ENGINE MODELS AFFECTED

Engine	Model
AEIO-320	-D1B, -D2B, -E1B, -E2B
AIO-320 ..	-A1B, -B1B, -C1B
IO-320 .....	-B1A, -B1C, -C1A, -D1A, -D1B, -E1A, -E1B, -E2A, -E2B
LIO-320 ...	-B1A, -C1A
AEIO-360	-A1A, -A1B, -A1B6, -A1D, -A1E, -A1E6, -B1F, -B2F, -B1G6, -B4A, -H1A, -H1B
AIO-360 -A1A, -A1B, -B1B.	
HIO-360 ..	-A1A, -A1B, -B1A, -C1A, -C1B, -D1A, -E1AD, E1BD, -F1AD
IO-360 .....	-A1A, -A1B, -A1B6, -A1B6D, -A1C, -A1D, -A1D6, -A2A, -A2B, -A3B6, -A3B6D, -B1B, -B1D, -B1E, -B1F, -B1G6, -B2F, -B2F6, -B4A, -C1A, -C1B, -C1C, -C1C6, -C1D6, -C1E6, -C1F, -C1G6, -C2G6, -J1A6D, -L2A, -M1A,
IVO-360 ..	-A1A
LIO-360 ...	-C1E6
TIO-360 ..	-A1B, -C1A6D
IGO-480 ..	-A1B6
AEIO-540	-D4A5, -D4B5, -D4D5, -L1B5, -L1B5D, -L1D5
IGO-540 ..	-B1A, -B1C

TABLE 1.—ENGINE MODELS AFFECTED—Continued

Engine	Model
IO-540 .....	-A1A5, -AA1A5, -AA1B5, -AB1A5, -AC1A5, -B1A5, -B1C5, -C1B5, -C4B5, -C4D5D, -D4A5, -E1A5, -E1B5, -G1A5, -G1B5, -G1C5, -G1D5, -G1E5, -G1F5, -J4A5, -V4A5D, -K1A5, -K1A5D, -K1B5, -K1C5, -K1D5, -K1E5, -K1E5D, -K1F5, -K1J5, -K1F5D, -K1G5, -K1G5D, -K1H5, -K1J5D, -K1K5, -K1E5, -K1E5D, -K1F5, -K1J5, -L1C5, -M1A5, -M1B5D, -N1A5, -P1A5, -R1A5, -S1A5, -T4A5D, -T4B5, -T4B5D, -T4C5D, -V4A5, -V4A5D, -W1A5D, -W3A5D
IVO-540 ..	-A1A
LTIO-540	-F2BD, -J2B, -J2BD, -N2BD, -R2AD, -U2A, -V2AD, -W2A
TIO-540 ..	-A1A, -A1B, -A2A, -A2B, -A2C, -AE2A, -AH1A, -AA1AD, -AF1A, -AF1B, -AG1A, -AB1AD, -AB1BD, -AH1A, -AJ1A, -AK1A, -C1A, -E1A, -G1A, -F2BD, -J2B, -J2BD, -N2BD, -R2AD, -S1AD, -U2A, -V2AD, -W2A
TIVO-540	-A2A
IO-720 .....	-A1A, -A1B, -D1B, -D1BD, -D1C, -D1CD, -B1B, -B1BD, -C1B

Engine models in Table 1 are installed on, but not limited to Piper PA-24 Comanche, PA-30 and PA-39 Twin Comanche, PA-28 Arrow, and PA-23 Aztec; Beech 23 Musketeer; Mooney 20, and Cessna 177 Cardinal aircraft.

**Note 1:** This AD is applicable to engines with an "I" in the prefix of the model designation that have externally mounted fuel injection lines. This AD is not applicable to engines having internally mounted fuel injection lines, which are not accessible.

**Note 2:** 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 (d) 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 already done. To prevent failure of the fuel injector fuel lines allowing fuel to spray into the engine compartment, resulting in an engine fire, do the following:

#### Engines That Have Been Previously Inspected

(a) For engines that have been inspected in accordance with Textron Lycoming Mandatory Service Bulletin (MSB) No. 342, Textron Lycoming MSB No. 342A, Textron Lycoming MSB No. 342B, Supplement No. 1 to MSB No. 342B, and Textron Lycoming MSB No. 342C, inspect in accordance with paragraph (c) of this AD.

#### Engines That Have Not Been Inspected

(b) For engines that have not had initial inspections previously done in accordance with Textron Lycoming MSB No. 342, Textron Lycoming MSB No. 342A, Textron Lycoming MSB No. 342B, Supplement No. 1 to MSB No. 342B, and Textron Lycoming MSB No. 342C, inspect in accordance with Textron Lycoming MSB No. 342D, dated July 10, 2001 as follows:

(1) For engines that have not yet had any fuel line maintenance done, or have not had any fuel line maintenance done since the last overhaul, inspect within 50 hours time-in-service after the effective date of this AD, and replace as necessary, the fuel injector fuel lines and clamps between the fuel manifold and the fuel injector nozzles that do not meet all conditions specified in Textron Lycoming MSB No. 342D, dated July 10, 2001.

(2) For all other engines, inspect within 10 hours time-in-service after the effective date of this AD, and replace as necessary, the fuel injector fuel lines and clamps between the fuel manifold and the fuel injector nozzles that do not meet all conditions specified in Textron Lycoming MSB No. 342D, dated July 10, 2001.

#### Repetitive Inspections

(c) Thereafter, at each annual inspection, at each 100-hour inspection, at each engine overhaul, and after any maintenance has been done on the engine where the fuel injector fuel lines have been disconnected, moved, or loosened, inspect the fuel injector fuel lines and clamps and replace as necessary any fuel injector fuel line and clamp that does not meet all conditions specified in Textron Lycoming MSB No. 342D, dated July 10, 2001.

#### Alternative Methods of Compliance

(d) 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 (ACO). Operators must submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, New York ACO.

**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 ACO.

#### Special Flight Permits

(e) Special flight permits may be issued in accordance with §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197

and 21.199) to operate the aircraft to a location where the requirements of this AD can be done.

Issued in Burlington, Massachusetts, on March 1, 2002.

**Mark C. Fulmer,**

*Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.*

[FR Doc. 02-5691 Filed 3-8-02; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2002-CE-03-AD]

RIN 2120-AA64

#### Airworthiness Directives; Air Tractor, Inc. Model AT-602 Airplanes

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This document proposes to adopt a new airworthiness directive (AD) that would apply to certain Air Tractor, Inc. (Air Tractor) Model AT-602 airplanes. This proposed AD would require you to repetitively inspect the left hand upper longeron and upper diagonal tube of the fuselage frame for cracks and repair any cracks found. This proposed AD would also require eventual modification of this area to terminate the repetitive inspection. This proposed AD is the result of reports of excessive movement in the empennage due to the loss of fuselage torsional rigidity. The actions specified by this proposed AD are intended to prevent failure of the fuselage caused by cracks. Such failure could result in loss of control of the airplane.

**DATES:** The Federal Aviation Administration (FAA) must receive any comments on this proposed rule on or before May 10, 2002.

**ADDRESSES:** Submit comments to FAA, Central Region, Office of the Regional Counsel, Attention: Rules Docket No. 2002-CE-03-AD, 901 Locust, Room 506, Kansas City, Missouri 64106. You may view any comments at this location between 8 a.m. and 4 p.m., Monday through Friday, except Federal holidays. You may also send comments electronically to the following address: 9-ACE-7-Docket@faa.gov. Comments sent electronically must contain "Docket No. 2002-CE-03-AD" in the subject line. If you send comments electronically as attached electronic files, the files must be formatted in

Microsoft Work 97 for Windows or ASCII text.

You may get service information that applies to this proposed AD from Air Tractor, Incorporated, P.O. Box 485, Olney, Texas 76374. You may also view this information at the Rules Docket at the address above.

**FOR FURTHER INFORMATION CONTACT:**

Andrew D. McAnaul, Aerospace Engineer, FAA, Fort Worth Airplane Certification Office, 2601 Meacham Boulevard, Fort Worth, Texas 76193-0150; telephone: (817) 222-5156; facsimile: (817) 222-5960.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

*How Do I Comment on This Proposed AD?*

The FAA invites comments on this proposed rule. You may submit whatever written data, views, or arguments you choose. You need to include the rule's docket number and submit your comments to the address specified under the caption **ADDRESSES**. We will consider all comments received on or before the closing date. We may amend this proposed rule in light of comments received. Factual information that supports your ideas and suggestions is extremely helpful in evaluating the effectiveness of this proposed AD action and determining whether we need to take additional rulemaking action.

*Are There Any Specific Portions of This Proposed AD I Should Pay Attention to?*

The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this proposed rule that might suggest a need to modify the rule. You may view all comments we receive before and after the closing date of the rule in the Rules Docket. We will file a report in the Rules Docket that summarizes each contact we have with the public that concerns the substantive parts of this proposed AD.

*How Can I Be Sure FAA Receives My Comment?*

If you want FAA to acknowledge the receipt of your comments, you must include a self-addressed, stamped postcard. On the postcard, write "Comments to Docket No. 2002-CE-03-AD." We will date stamp and mail the postcard back to you.

**Discussion**

*What Events Have Caused This Proposed AD?*

The FAA has received reports of three occurrences where cracks were found on the left hand upper longeron and

upper diagonal support tubes intersect on the left hand side of the fuselage frame just forward of the vertical fin front spar attachment point on Model AT-602 airplanes. The crack starts at the forward edge of the weld where the tubes come together. We have determined that the cracks are a result of high vertical tail loads during repeated hard turns. The cracks were found by the pilot and/or ground crew when they noticed excessive movement in the empennage due to the loss of torsional rigidity.

*What Are the Consequences if the Condition Is Not Corrected?*

This condition, if not corrected, could cause the fuselage to fail. Such failure could result in loss of control of the airplane.

*Is There Service Information That Applies to This Subject?*

Air Tractor has issued the following:

- Snow Engineering Co. Service Letter #195, dated February 4, 2000;
- Snow Engineering Co. Service Letter #213, dated November 13, 2001;
- Snow Engineering Co. Process Specification #102, Revised January 5, 2001;
- Snow Engineering Co. Process Specification #120, Revised December 16, 1997; and
- Snow Engineering Co. Process Specification #125, dated November 28, 1993.

*What Are the Provisions of This Service Information?*

These service bulletins include procedures for:

- Repetitively inspecting the upper longeron and upper diagonal tube on the left hand side of the aft fuselage structure for cracks; and
- Modifying this area by installing reinforcement parts.

**The FAA's Determination and an Explanation of the Provisions of This Proposed AD**

*What Has FAA Decided?*

After examining the circumstances and reviewing all available information related to the incidents described above, we have determined that:

- The unsafe condition referenced in this document exists or could develop on other Air Tractor Model AT-602 airplanes of the same type design;
- The actions specified in the previously-referenced service information should be accomplished on the affected airplanes; and
- AD action should be taken in order to correct this unsafe condition.