



FAA
Aviation Safety

EMERGENCY

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/

DATE: February 10, 2012

AD #: 2012-03-52

Emergency Airworthiness Directive (AD) 2012-03-52 is sent to owners and operators of Mooney Aviation Company, Inc. (Mooney) Models M20TN and M20R airplanes.

Background

This emergency AD was prompted by a report of an incident on a Mooney Model M20TN airplane regarding the tail pitch trim assembly. In this report, the affected airplane experienced an un-commanded significant pitch up attitude within seconds after takeoff and during the climb. The pilot then pushed the yoke forward and the aircraft still maintained a nose-up attitude.

The pilot stated that the "forces acting on the control column were so large that single pilot wasn't able to handle that for more than just a few minutes." The pilot and copilot had to use their knees to hold forward pressure on the flight controls to aid in preventing a departure from controlled flight. They had to maintain between 80 to 100 percent power to keep the aircraft at about 90 knots indicated airspeed to prevent the airplane from stalling. The only way they were able to descend was to introduce a series of turns.

On Mooney Models M20TN and M20R airplanes, the pitch trim is adjusted by rotating the entire tail assembly. The actuating arm pushes on a hinge fixed to the empennage forward bulkhead. The hinge attaches to the bulkhead using 10 Huck Bolt fasteners with swaged collars.

This aircraft was immediately inspected, and all 10 swaged collars that hold the tail trim assembly together had become unattached.

Mooney inspected several other aircraft and found that on one airplane the filler plate was incorrectly installed. The filler plate was not correctly installed between the aft side of the hinge and the bulkhead. Instead, the filler plate was located on the forward side of the hinge between the hinge and trim fitting. It was then noted the incident aircraft had the same issue, as shown in the upper circle of figure 1.

Because the hinge has a lip on the bottom, on the side toward the bulkhead (as shown in the bottom circle of figure 1), if the filler plate is not installed correctly, the hinge will not fit flush against the bulkhead, the Huck Bolt fasteners will not fit perpendicular to the bulkhead, and the collars will not swage properly. The condition also causes excessive tension pre-load on the Huck Bolts.

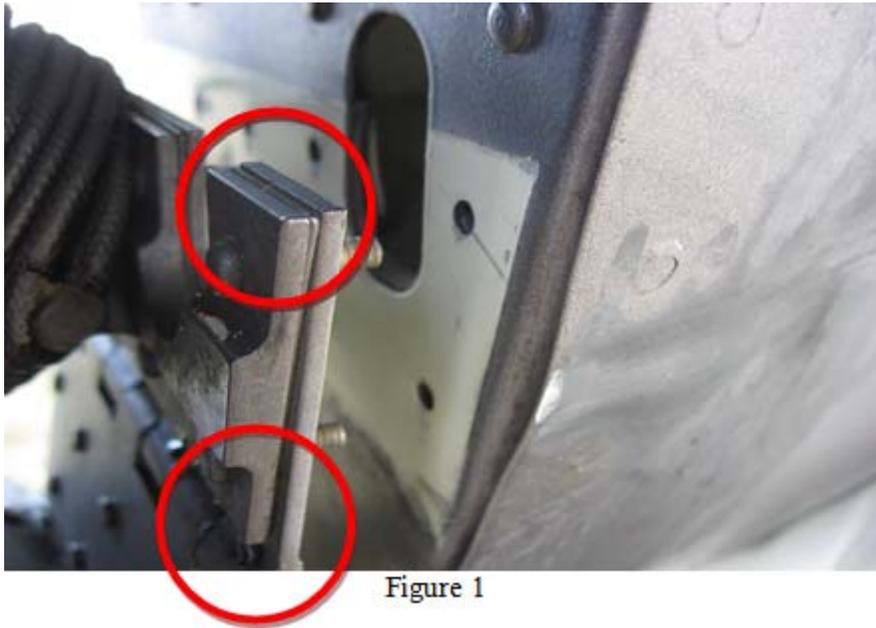


Figure 1

The incident aircraft was manufactured in 2008. Mooney has determined the incorrect installation was a manufacturing quality escape during production.

We are issuing this AD to detect incorrect positioning and improper attachment of the trim fitting, hinge, and filler plate of the tail pitch trim assembly and to verify security of the attaching Huck Bolt fasteners, which could lead to failure of the tail pitch trim assembly with consequent loss of pitch control.

Relevant Service Information

We reviewed Mooney Aviation Company, Inc. Service Bulletin No. M20-313, dated February 7, 2012. The service information describes procedures for inspecting the trim fitting, hinge, filler plate, and attaching fasteners of the tail pitch trim assembly.

FAA's Determination

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

AD Requirements

This AD requires inspecting the trim fitting, hinge, and filler plate of the tail pitch trim assembly for correct positioning and proper attachment, and inspecting the Huck Bolt fasteners for proper security. If incorrect positioning or improper/loose attachment is found, the owner/operator must contact Mooney for FAA-approved repair instructions. The AD also requires sending the inspection results to the FAA and Mooney.

Interim Action

We consider this AD interim action. Mooney and the FAA will analyze the results of the inspection required by this AD. We may take further rulemaking action in the future.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Presentation of the Actual AD

We are issuing this AD under 49 U.S.C. Section 44701 according to the authority delegated to me by the Administrator.

2012-03-52 **Mooney Aviation Company, Inc. (Mooney)**: Directorate Identifier 2012-CE-005-AD.

(a) Effective Date

This Emergency AD is effective upon receipt.

(b) Affected ADs

None.

(c) Applicability

This AD applies to the following Mooney Aviation Company, Inc. airplanes, certificated in any category:

| | Models | Serial Numbers |
|-----|---------------|-------------------------|
| (1) | M20R | 29-0465 through 29-0519 |
| (2) | M20TN | 31-0003 through 31-0127 |

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 55; Stabilizers.

(e) Unsafe Condition

This AD was prompted by a report of an incident on a Mooney Model M20TN airplane regarding failure of the tail pitch trim assembly. We are issuing this AD to detect incorrect positioning and improper attachment of the trim fitting, hinge, and filler plate of the tail pitch trim assembly; and detect improper security of the Huck Bolt fasteners to prevent failure of the tail pitch trim assembly, which could result in loss of control.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Inspection

Before further flight after receipt of this emergency AD, inspect the trim fitting, hinge, and filler plate of the tail pitch trim assembly for correct positioning and proper attachment; and also inspect that the Huck Bolt fasteners are properly secured following Mooney Aviation Company, Inc. Service Bulletin No. M20-313, dated February 7, 2012.

(h) Corrective Action

If during the inspection required in paragraph (g) of this AD you find incorrect positioning or improper attachment of the trim fitting, hinge, and filler plate of the tail pitch trim assembly; and/or you find loose or improperly installed Huck Bolt fasteners, before further flight, contact Mooney for FAA-approved repair instructions and perform the repair. Use the contact information found in paragraph (m)(2) of this AD.

(i) Reporting Requirement

Within 24 hours after the inspection required in paragraph (g) of this AD, send the inspection results to Mooney and to the FAA using the following contact information. Use the form on page 4 of Mooney Aviation Company, Inc. Service Bulletin No. M20-313, dated February 7, 2012, to comply with this AD action:

(1) Mooney Aviation Company, Inc., 165 Al Mooney Road North, Kerrville, Texas 78028; telephone: (830) 896-6000; email: technicalsupport@mooney.com; Internet: www.mooney.com; and

(2) Andrew McAnaul, Aerospace Engineer, ASW-150 (c/o MIDO-43), 10100 Reunion Place, Suite 650, San Antonio, Texas 78216; telephone: (210) 308-3365; facsimile: (210) 308-3370; email: andrew.mcanaul@faa.gov.

(j) Paperwork Reduction Act Burden Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

(k) Special Flight Permit

Special flight permits are prohibited for this AD.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Fort Worth ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(m) Related Information

(1) For further information about this AD, contact: Andrew McAnaul, Aerospace Engineer, ASW-150 (c/o MIDO-43), 10100 Reunion Place, Suite 650, San Antonio, Texas 78216; telephone: (210) 308-3365; facsimile: (210) 308-3370; email: andrew.mcanaul@faa.gov.

(2) For copies of the service information referenced in this AD, contact: Mooney Aviation Company, Inc., 165 Al Mooney Road North, Kerrville, Texas 78028; telephone: (830) 896-6000; email: technicalsupport@mooney.com; Internet: www.mooney.com.

(3) You may review copies of the referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

Issued in Kansas City, Missouri on February 10, 2012.

John Colomy,
Acting Manager, Small Airplane Directorate,
Aircraft Certification Service.