

SUBJECT:

LANDING GEAR ACTUATOR REPLACEMENT

Part 1: Replacement of Landing Gear Actuator
(ITT P/N LA11C2110) with Improved
Actuator (Mooney P/N 950227-501)

Part 2: Inspection of Landing Gear System Details

MODELS AFFECTED:

All M20 Series aircraft equipped with ITT
electric actuators (P/N LA11C2110)

M20C - 20-0037, 0038, 0039, 0040, 0041, 0042,
0043, 0044, 0045, 0046

M20E - 21-0050, 0051, 0052, 0053, 0054, 0055,
0056, 0057, 0058, 0059, 0060

M20F - 22-0065, 0066, 0067, 0068, 0069, 0070,
0071, 0072, 0073, 0074, 0075, 0076,
0077, 0078,

**TIME OF
COMPLIANCE:**

Immediately before further flight
(Note: If aircraft must be flown to a facility
for actuator replacement, see page 5.

INTRODUCTION:

Part 1: Incidents have been reported that under
certain circumstances, the threaded stud
end of the actuator, P/N LA11C2110,
separated from the tube assembly which
is attached to the ball drive. To preclude
this possibility, replace the entire
actuator assembly with the new improved
assembly, Mooney P/N 950227-501.

Part 2: To provide smoother operation of the
landing gear retraction/extension system,
inspection is recommended of those com-
ponents which could cause binding and/or
excessive friction, in the system.

INSTRUCTIONS:

Part 1:

1. Raise aircraft on jacks (Refer to Mooney M20 Series Service and Maintenance Manual- Paragraph 2.9) and remove belly access panels.
2. Disconnect actuator electrical wires (three wires at relay and one at the knife disconnect in the wiring bundle). Identify each terminal with wire color for later re-assembly.
3. Using "Manual" system, retract only enough to release the over-center, gear down locks of all three gears.
4. Disconnect "Manual Disengage" spring and cable from actuator assembly.
5. Remove hex cap and extract manual drive cable from disengage unit of actuator assembly.
6. Remove actuator assembly from aircraft as follows:
 - A) Remove nut, bolt and washers attaching forward rod end to torque tube bellcrank. (Note particularly the arrangement of the larger, thin washer, AN960-716L, installed adjacent to rod end bearing.)
 - B) Remove nut, bolt, bushing and washers attaching aft end of actuator assembly to aircraft.
7. Place old actuator along side new actuator and remove disengage unit from old actuator and install on new actuator. Re-safety.
8. Change heim ball joint to new actuator. Verify that new actuator measures $7.50" + .125"$ from jam nut end of heim to aft end of square jack screw ball housing. Apply loctite to set screw threads and install set screw.

Instructions Part 1 cont....

9. Install new actuator assembly and 950092-501 lug.

CAUTION: When attaching forward rod end of actuator, insure that the larger, thin washer (AN960-716L) is installed adjacent to rod end bearing. Remaining washers (AN960-616) are to be installed on either side of the combination of rod end and -716L washer as required to restrict lateral movement. Washer installation should not displace rod end laterally from its free position.

10. Re-install and re-rig manual emergency gear extension system per Mooney M20 Series Service and Maintenance Manual (Paragraph 5-16).
11. Safety wire manual drive hex cap.
12. Check landing gear system rigging per Service and Maintenance Manual paragraphs 5-14, 5-15, 5-16 and 5-17, except disregard .88" dimension of Fig. 5-8.

Part 2:

1. Conduct a visual inspection of all rod ends, bearing, hinges, etc. for evidence of binding and/or excessive friction.
2. Specific areas to be checked are:
 - A) Nose gear overcenter forward link at forward end. Excess number of washers or misalignment with aft link may create excessive friction.
 - B) With new actuator installed verify positive clearance between the forward heim rod end and the torque tube bellcrank ears throughout the extension/retraction cycle.

Instructions Part 2 cont....

- C) With new actuator installed verify positive clearance between the actuator housing and the actuator support "hat" section.

NOTE: Make appropriate log book entry:
Fill in and return service bulletin compliance card to
Mooney Aircraft Corp.

INSTRUCTIONS FOR TEMPORARY GEAR DOWN FLIGHT

1. Pull out gear actuator circuit breaker.
2. Main Gear
 - A) Fabricate 2 (1/2" x 2.50") plates and 2 (1/2" x 6.00") plates of 1/4", 3/8", or 1/2" thick steel.
 - B) Remove inboard grease fitting on lower over-center link.
 - C) Install short plate on top and long plate on bottom of each over-center joint and secure with three Aero seal or equivalent steel clamps to secure joint in the overcenter position.
3. Nose gear
 - A) Fabricate 2 (1/2" x 6") plates of 1/4", 3/8" or 1/2" thick steel.
 - B) Remove aft grease fitting on lower over-center link.
 - C) Install plates on upper and lower surfaces of overcenter joint and secure with 2 Aero seal or equivalent steel clamps to secure joint in the overcenter position.
4. Contact local GADO office for special airworthiness certificate.
5. Do not exceed 120 MPH IAS during flight to destination.

SERVICE BULLETIN KIT NO. M20-191

1. 950227-501 Actuator Assy. (One)
2. 950092-501 Lug (One)
3. 950125 Ball Joint (One)
4. AN316-6R Nut (One)