



THIS BULLETIN IS FAA APPROVED FOR ENGINEERING DESIGN.

SERVICE BULLETIN M20-280

Date: August 1, 2002

SUBJECT: MAIN LANDING GEAR RETRACTION TUBE ROD ENDS  
 MODELS/ S/N M20M 27-0287 through 27-0316  
 AFFECTED: M20R 29-0218 through 29-0280  
 M20S 30-0047 through 30-0062  
 TIME OF COMPLIANCE: Within the next 25 flight hours

INTRODUCTION: Main Landing Gear Retraction/Extension Tube 915053-501 connecting 560236-509 Retraction Bellcrank to 560202-501 & -502 Bellcrank Assembly has Bearing P/N 915053-7 connected to 560236-509 Retraction Bellcrank. This 915053-7 Bearing may not be to design requirements.  
 Bearing 915053-7, attaching 915053-501 to 560236-509 may fail in very high loads encountered during retraction of the landing gear at speeds above  $V_{LO(RET)}$ . There may be a possibility that excessive loads to the gear system may be encountered at maneuvers above  $V_A$ . If failure of the Rod End occurs, a main landing gear will free-fall to a down position and may lock overcenter. The other main and nose gear will remain retracted.

INSTRUCTIONS: Place aircraft on jacks and remove belly panels forward of the main spar. Using the emergency bypass button, partially retract landing gear. Disconnect 915053-501, right and left, Control Tube, from 560236-509 Retraction Bellcrank and 560202-501 & -502 Bellcrank Assembly. Remove 915053-501 Control Tubes from aircraft. Note the number and position of the AN960-416L shimming washers and set aside for reinstallation. Cut safety wire of NAS559-1 Key and NAS509-4 Nut. Remove 915053-7 Bearings, and count the number of turns required to remove 915053-7 Bearing. This will simplify rigging of the landing gear later.

Discard 915053-7 Bearings, NAS509-4 Nuts and NAS559-1Keys.

Install AM-4M-13 Rod End (880101-1 Rod End) to 915053-501 Control Tube with AN316-4R Nut. Install to the same number of turns as was counted on removal of 915053-7 Bearing. Tighten AN316-4R Nut to 30-40 in-lbs. Reference drawing on page 2, drill .093 inch diameter hole at location shown on drawing. Install MS24665-227 Cotter Pin.

Install new AN24-22A Bolt (if required) on left side of 560236-509 Retracting Bellcrank and AN24-22A Bolt on right side (if required). Shim between AM-4M-13 Rod End and 560236-509 Retracting Bellcrank using AN960-416L Washers as was shimmed from the factory. Install new AN316-4R Nuts and torque 30 to 40 in-lbs.

Check landing gear rigging per Chapter 32 of Mooney Service and Maintenance Manual. Note: when the landing gear is properly in rig, it will be possible to, but with difficulty, to rotate the main tire when the landing gear is retracted. The gear doors will be closed without deformation of the door when the landing gear is retracted or extended. Follow Mooney Service and Maintenance Manual for gear door rigging.

Install Belly Panels. Complete Log Book entries and return aircraft to service.

WARRANTY: Check with Mooney Airplane Company Flight Service. Telephone: 830-896-6000  
 REFERENCE: Mooney Service and Maintenance Manual

DATA:

PARTS LIST: AM-4M-13 (Aurora P/N) [880101-001 MAC P/N] Rod End [MM-4M-13 (ALT) - (2)  
 AN316-4R - - - - - Nut - - - (2)  
 MS24665-227 - - - - - Cotter Pin - - - (2)

FIGURE/TABLES: Figure 1, Page 2

SUBJECT: MAIN LANDING GEAR RETRACTION TUBE ROD ENDS

**CAUTION:** When rigging the landing gear per SERVICE & MAINTENANCE MANUAL, insure no damage occurs to Rod Ends or the stud section of the Rod End.

