SUBJECT: LANDING GEAR DOWN-LIMIT SWITCH, RETRACTION LINKS AND GEAR ACTUATOR MOTOR REPLACEMENT.

MODELS AFFECTED: ALL M20 series Mooney model aircraft equipped with Mooney electrically retracting landing gear through mid 1970 models as follows:

(Instruction I & IV) ALL electric gear equipped aircraft through M20C S/N 700054, M20E S/N 700034, M20F S/N 700037, and M20G S/N 700006.

(Instruction II) ALL electric gear equipped aircraft through M20C S/N 670124, M20E S/N 670020, and M20F S/N 670362.

(Instruction III) ALL electric gear equipped aircraft through M20C S/N 700011, M20E S/N 700012, M20F S/N 700008, and M20G S/N 700001 aircraft that have gear actuator motors with a S/N below 1699.

TIME OF COMPLIANCE: MANDATORY within the next 50 hours.

INTRODUCTION: There have been reports of the gear actuator "backing" off the "down" limit switch creating an unsafe landing gear condition. To preclude this possibility, accomplish Instruction III, below.

To standardize the rigging information and hardware relating to the electrically-operated landing gear retracting system, accomplish Instruction I, II, and IV.

WARNING: Lack of compliance with this Bulletin may result in unsatisfactory electrical extension of the electric gear.

INSTRUCTION I: "DOWN" LIMIT SWITCH REPLACEMENT. Replace existing switch with 1CH1-6 "down" limit switch and 560234-3 attach bracket. Order S.B. 20-177-1 kit for applicable parts and instructions.

INSTRUCTION II: GEAR RETRACTING LINK REPLACEMENT. Unless S.B. 20-155 dated 6-15-67 has been accomplished, replace main and nose gear retraction links with new links (with grease fittings) supplied in S.B. 20-177-3 kit. Install links per instructions of Service Bulletin 20-155.

INSTRUCTION III: GEAR ACTUATOR MOTOR REPLACEMENT. Replace the gear actuator motor and the right angle gear assembly/manual disengage unit with an actuator S/N higher than 1699. Order S.B. 20-177-2 kit for applicable parts and instructions.

INSTRUCTION IV: RE-RIGGING OF DISENGAGE AND LANDING GEAR SYSTEMS
2. Test gear to see that it operates properly both the electrical and the manual emergency system.

WARNING: When testing emergency manual gear extension system, do not manually retract gear. Use electrical retraction only.

3. Flight test installation. Check both electrical and emergency gear extension system during flight.

4. To fully comply with this Bulletin, fill-out and mail the Service Bulletin Compliance Card enclosed in 20-177-1 kit.

Neither this document (nor any amendment hereunto) nor anything contained herein shall be construed an assumption by this corporation of any of the obligations or liabilities of its predecessors, Mooney Aircraft, Inc. or Mooney Corporation, both Texas corporations, or as otherwise imposing on Mooney Aircraft Corporation (a Pennsylvania corporation) any of the obligations or liabilities of its predecessors.

SERVICE BULLETIN KIT:

20-177-1 Kit - See Instruction I.
- 560234-3 Bracket ........................................... (1)
- AN 516-68 Screws ........................................... (2)
- 1CH1-6 Micro Switch (MS 24331-1) ....................... (1)
- Misc. Instructions & Schematics .......................... (1 set)
- Service Bulletin & Compliance Card ...................... (1)

20-177-2 Kit - See Instruction III.
- Gear actuator motor, right angle gear and manual disengage ..................................... (1) Unit Assy.
  (Motor P/N 4196-100 “J” Chg.; right angle gear of 4198-00-1C actuator; manual disengage P/N 3214-00)
- Misc. Instructions & Schematics ......................... (1 set)

20-177-3 Kit - See Instruction II.
- 630003-13 N. G. Retracting Link ....................... (1)
- 510011-13 M. G. Retracting Links ....................... (2)
- MS 15002-1 Grease Fittings ............................... (6)
M20C, M20D/converted to retrackable, M20E aircraft prior to 1968.
Miscellaneous Instructions & Schematics S.B. Kit No. 20-177-1

M20C & G Models

Applicable only on 1966, 1967, & 1968 M20F Models (i.e., and 1968)

All dash numbers are preceded by the number 560084 (This schematic)

[Diagram of electrical circuit]
FIGURE 1
(IMAGE LOOKING INBD. & UP)

REMOVE SCREWS

FIGURE 2
(IMAGE LOOKING INBD. & UP)

INSTALL
ICH1-6 MICRO SWITCH (1)

AN 515-6B6 SCREWS (2)
560234-38 BRACKET (1)

REMOVE EXISTING DOWN-LIMIT MICRO SWITCH

FORWARD
RIGHT ANGLE GEAR AND MANUAL DISENGAGE UNIT ASSEMBLY P/N 3214-00

WITH MASTER SWITCH OFF AND LANDING GEAR DOWN AND LOCKED, MANUALLY ROTATE THIS RUBBER COUPLING AS SHOWN BY ARROW (COUNTER-CLOCKWISE)

ELECTRIC GEAR MOTOR P/N 2196-66

CAREFULLY OBSERVE FOR ANY BACKING-OFF MOTION WHEN GEAR REACHES THE DOWN AND LOCKED POSITION

FIGURE 7
VIEW LOOKING UP AND FORWARD AT LANDING GEAR ACTUATOR