SUBJECT: REPLACEMENT OF DUKES 4196-00-1C GEAR ACTUATORS WITH MOONEY P/N 950227-501, or ITT P/N LA11C2115 OR LA11C2114 ACTUATOR

MODELS AFFECTED: All M20 Series aircraft equipped with Dukes electric gear actuators.

TIME OF COMPLIANCE: Whenever replacement of actuator is necessary.

GENERAL: 1. Place aircraft on jacks and remove old actuator.
2. Install new actuator.
3. When installing Heim bearing end in bellcrank, position it freely so there will be no lateral bind on the jack screw. Place one AN960-716 washer next to the balljoint (can be placed on either side), and shim remaining space with AN960-616 washers. This installation will prevent Heim bearing from twisting too far, yet will provide adequate movement.

NOTE: Previous installation may have contained one large AN960-916 washer next to the balljoint. This washer must not be reinstalled. The AN960-716 smaller and thinner washer described above is used as a replacement.

4. Wire as follows:

(a) All serial numbers prior to 700001C,E,F and G. Attach -53 wire to "B₁" of relay 88. Attach "BLACK" wire of new actuator and "YELLOW" brake wire to "A₁" of relay 88. Attach "ORANGE" wire and "GREEN" brake wire to "B₂" of relay 88. (See schematic Figure 1).

(b) Serial numbers 700001C to 700055C, 700001E to 700035E, 700001F to 700038F, and 700001G to 700007G. Attach wire 20EG01A12 to "B₁" of relay 20EG04A. Attach "BLACK" actuator wire and "YELLOW" brake wire to "A₁" of relay 20EG04A. Attach "ORANGE" wire and the "GREEN" brake wire to "B₂" of relay 20EG04A. (See schematic Figure 2).

(c) Serial numbers 700055C to 20-0042, 700035E to 21-0051, 700038F to 22-0069, and 700007G and on. Attach wires (2) 20EG01C16 to "B₁" of relay 20EG04A. Attach "BLACK" actuator wire and "YELLOW" brake wire to "A₁" of relay 20EG04A.
GENERAL cont'd...

4. (c) cont...
Attach "ORANGE" wire and the "GREEN" brake wire to "B2" of relay *20EG04A. (See schematic Figure 3).

5. Attach applicable schematic in rear of aircraft log book.

6. Rig gear system per procedures outlined in Mooney Service and Maintenance Manual except as shown by illustration below, Service Instruction M20-32 and illustration on page 2A.

7. Make the necessary changes in the appropriate section of your Service & Maintenance Manual.

8. Fill in and return enclosed Compliance Card.

(1) 950227-501, ITT #LA11C2115 Actuator
(1) ITT 125182A Disengage
(2) AN743-12 Bracket
(2) AN742-3 Clamp
(2) AN3-4A Bolt
(2) AN960-10 Washer
(2) AN365-1032 Nut
(1) AN960-716L Washer

M20-189-2 Kit:
(1) ITT #LA11C2114
(1) ITT #125182A Disengage
(1) AN743-12 Bracket
(2) AN742-3 Clamp
(2) AN3-4A Bolt
(2) AN960-10 Washer
(2) AN365-1032 Nut
(1) AN960-716L Washer
(1) AN735-40-2-8 Clamp
(1) MS35207-263 Screw
Disengage Clamp Installation for
ITT #LA11C2114 Actuator Installation
NOTE: All wire dash numbers in bubbles "Example (25) are 560084 wires.

### ORIGINAL CONFIGURATION

#### Gear Actuator

- Red
- Yellow

#### Gear Actuator

- Green
- Orange

#### Gear Actuator

- Yellow

#### Gear Actuator

- Black

#### Gear Actuator

- White

### MODIFIED CONFIGURATION

#### Gear Actuator

- Red
- Yellow

#### Gear Actuator

- Green
- Orange

#### Gear Actuator

- Yellow

#### Gear Actuator

- Black

#### Gear Actuator

- White

---

FIGURE 1

S. B. M20-189
Page 3
FIGURE 2