



SUBJECT: Replacement of the throttle, mixture, and propeller-governor controls

MODELS AFFECTED: M20C S/N 1852, 1940 thru 3466
S/N 670001 thru 670149
S/N 680001 thru 680198

M20D S/N 101 thru 260

M20E S/N 101 thru 1308
S/N 670001 thru 670062

M20F S/N 660003 and 660004
S/N 670001 thru 670539
S/N 680001 thru 680206

M20G S/N 680001 thru 680164

TIME OF COMPLIANCE:

INSTRUCTION I: MANDATORY compliance within the next annual or 100 hour inspection, whichever comes first.

INSTRUCTION II: At owner's option.

INTRODUCTION: Reports have been received concerning separation of the mixture and throttle control cables. Replacement of these controls with new controls manufactured by American Chain and Cable Corporation is required.

INSTRUCTION I: Replacement of Mixture and Throttle Controls (Ref. M20-174-1 & 2 Kits)

1. Replace throttle control (all models).
 - a. Disconnect cable from the carburetor end of the throttle control.
 - b. Remove all support clamps.
 - c. Remove mounting bracket with micro switch installed.
 - d. Remove jam nut from the firewall fitting and instrument panel, and pull the throttle end of the control thru firewall into cabin.
 - e. Install the new American Chain and Cable throttle control Mooney P/N 660190-3 (for Models M20C, D, & G) or, Mooney P/N 660190-5 (for Models M20E & F). Install these controls in reverse removal order of existing throttle control. Clamp control same as existing control except for most forward throttle support clamp (next to carburetor) which is to be replaced with an AN472-5 (all metal) clamp. Use existing control knob from Arens.
 - f. Adjust the end fitting of the throttle control at the carburetor throttle arm so that the knob is 1/16 to 1/8 inches from the stop when the throttle is in the fully open position. Check the control travel to ascertain that the throttle arm has full travel between the full closed and the full open positions.

INSTRUCTION I cont...

1. g. Adjust the micro switch so that the gear warning horn sounds when throttle opening indicates 11 to 13 inches of manifold pressure.
- h. Check control for smoothness of operation and adequate clearance.
2. Replace mixture control (for models E & F)
 - a. Remove existing mixture control and supporting hardware from aircraft.
 - b. Install the new American Chain and Cable mixture control Mooney P/N 660189-3 by installing control in reverse order of removal using available parts and hardware.
 - c. Adjust the end fitting of the mixture control at the mixture arm so that the knob is 1/16 to 1/8 inches from the stop when the mixture control is in the full rich position. Check the control travel to ascertain that the mixture arm has full travel between the full closed and the full open positions.
 - d. Check controls for smoothness of operation and adequate clearance.

INSTRUCTION II:

Replacement of propeller-governor control (Ref. M20-174-3 Kit).

1. Remove existing propeller-governor control and supporting hardware from aircraft.
2. Install the new American Chain and Cable propeller-governor control Mooney P/N 660189-5 using available hardware.
3. Adjust control at the propeller-governor so that the control knob is 1/16 to 1/8 inches from the stop when the propeller-governor arm is in the high RPM position.
4. Check the control travel to ascertain that the governor arm has full travel between the high and low RPM positions.

COMPLIANCE NOTIFICATION:

To fully comply with this service bulletin, fill out the attached compliance card and mail to the factory.

Neither this document (nor any amendment hereto) 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:

M20-174-1 Kit -	M20C,D,&G:	660190-3 Throttle Control	.....	(1)
		Service Bulletin Compliance Card	.....	(1)
M20-174-2 Kit -	M20E & F:	660190-5 Throttle Control	.....	(1)
		660189-3 Mixture Control	.....	(1)
		Service Bulletin Compliance Card	.....	(1)
M20-174-3 Kit -	All Models:	660189 Propeller-Governor	.....	(1)
		Service Bulletin Compliance Card	.....	(1)

These service bulletin kits may be procured from your local Mooney distributor and service center. Direct factory orders will not be accepted.

S.B. 20-174

1. Remove Arcs control from aircraft.
2. Pull out control handle until handle hits stop and remove plunger (push-button) knob, shaft and spring from control barrel housing.
3. Remove crimped ears from cavity inside large knob so as to allow knob to be unscrewed from control housing.
4. Unscrew (counter-clockwise) large knob from control housing by holding housing in vise and turning knob using a vise grip or pipe wrench.
5. Remove plunger (push-button) knob from shaft. Clamp shaft in vise. Pry-off plunger knob from shaft.
6. Remove 1/4 inch material from underside of plunger (push-button) knob (side of knob with smallest O. D.)
7. Drill 3/16 inch diameter hole thru center of plunger (push-button) knob. Counterbore side of knob with largest O. D. to match head of AN 507-8R20 screw.

8. Remove control knobs^s and spring from 660189-3 and -5 controls by removing screw.
9. Apply Loctite (Type CV recommended) on threads of knob and screw-on Arens large knob on 660189-3 & -5 controls. Install Arens control spring and secure reworked knobs with AN 507-8R20 screw thru plunger (push-button) knob.
10. After a satisfactory check of control for adequate freedom of movement and locking action, install control on aircraft.
11. This dwg. is to be enclosed in all 20-174-2 and -3 kits sold by Spare Parts.
12. It is recommended to comply with knob conversion at least on the prop-governor control, so as to facilitate distinguishing between controls from a sense of feel alone.

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