

FIGURES/TABLES: See Figure SI M20-105-1 below

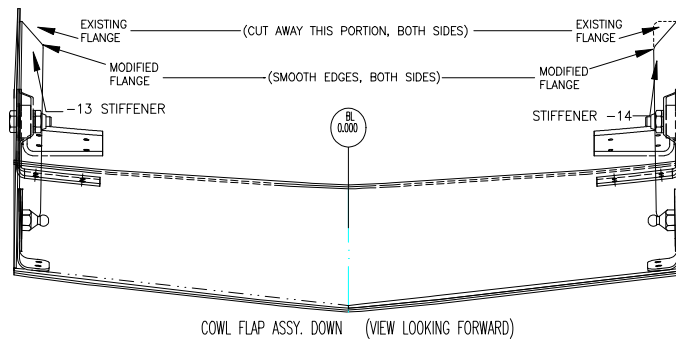
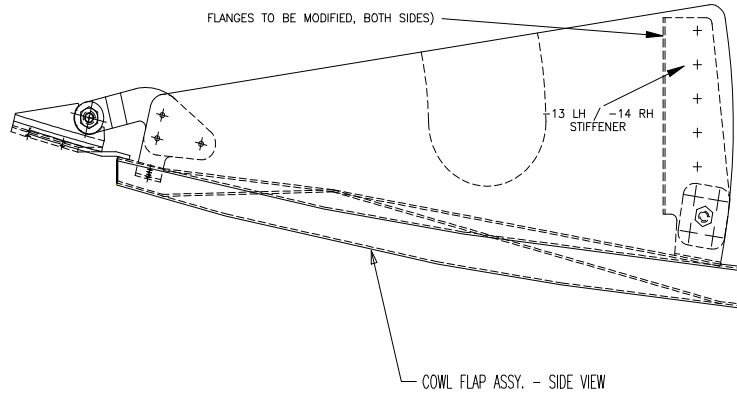


FIGURE SI M20-105-1

COWL FLAP MODIFICATION

----- If cowling has not been removed from aircraft.

7. Disconnect cowl flap from linkage mechanism on both sides of cowl flap. Let cowl flap hang down for access.
8. Mark a 45° angle on the upper, top, tip end of the stiffener angled flanges, both sides of the cowl flap, from the flange bend radius area to the outside edge of the flange.
See Figure SI M20-105-1.
9. Carefully cut this marked portion from the stiffener flange of each stiffener on the cowl flap assembly.
10. Burnish the cut edges, especially in the flange's bend radius area. Radius the outer edge of the flanges with a file to approximately a 1/8 inch outside radius.

-----If cowling has been removed from aircraft.

Cowl Flap modification is the same as steps 8 through 10 above.

11. Re-attach the extension/retraction linkages to the cowl flap. Run cowl flap to the UP (closed) position and observe the proximity of the cowl flap stiffener flange to the engine mount. The modification should provide sufficient clearance between the engine mount and the cowl flap during flight, even though an interference point cannot be identified in the static position.
12. Re-install cowling onto aircraft (if removed). Connect retract/extend linkages to cowl flap.

POST MODIFICATION FLIGHT AND INSPECTION

13. After verifying that all connections and repairs are complete and correct, aircraft should be ready to fly for post modification verification.
14. Fly aircraft and operate cowl flaps (within proper speed range) to verify complete retraction and extension criteria.
15. Position cowl flaps in the full closed position (when altitude and temperature allow) and leave them in this position as aircraft speed is increased and decreased within normal operating parameters. The indication of cowl flange interference on engine mount tube(s) may not show up at first flight. However, continue to inspect this possibility for the next several flights.
16. Contact Mooney Customer Support at 1(800) 331-3880 if evidence of interference becomes known.
17. Complete Log Book entry, stating compliance with SI M20-105.

WARRANTY:

Mooney Aircraft Corporation will allow up to 0.5 hours to accomplish inspection in accordance with paragraphs 1 through 4 above. Up to 1.0 additional hour will be allowed to modify cowl flap stiffener flange per steps 7 through 12 above. If the engine mount tubes require repair in accordance with steps 5 and 6 above, up to 1.0 additional hour will be allowed for each tube repair.

REFERENCE

DATA: N/A

PARTS LIST: N/A

SERVICE INSTRUCTION M20-105

DATE: 21 APRIL, 2000

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SUBJECT: ENGINE MOUNT INSPECTION/REPAIR, COWL FLAP MODIFICATION

MODELS/S/N

AFFECTED: M20K, S/N 25-2013 THRU 25-2032, AND ANY M20K THAT HAS CARBON FIBER COWLING INSTALLED.

TIME OF

COMPLIANCE: WITHIN NEXT 50 FLIGHT HOURS

INTRODUCTION: Some M20K (Encore) models have exhibited contact between the cowl flap stiffener plate and lower engine mount tubes, LH & RH sides, while the aircraft is in flight. The interference/contact is not normally present in static conditions. As the aircraft's speed increases, the cooling ram air pressure coming through the cowling inlet openings and exiting through the cowl flap area, creates sufficient pressure to slightly distort the cowl flap and cause the stiffener plate's angled flange to contact the lower engine mount tubes. Over a period of time, the aluminum plate flange will abrade the steel, engine mount tubes. This area requires inspection, and repairs, if necessary.

INSTRUCTIONS:

INSPECTION

1. With aircraft on the ground, run cowl flap UP to closed position. Observe the clearance between the aluminum stiffener flanges on cowl flap and both (RH & LH) lower engine mount tubes. Identify the area on the lower engine mount tubes where the aluminum stiffener flange is closest to each engine mount tube.

NOTE:

Look through the exhaust cavity/fairing openings to see the area of possible interference.

2. If clearance is or is not observed, lower the cowl flap and inspect the lower engine mount tubes for any damage in the areas identified in 1 above.
3. If there is evidence of contact between either of the cowl flap stiffener flanges and the engine mount tubes, careful evaluation of the depth of any tube damage must be made. If the depth of the damage to either tube exceeds 10% of the thickness of the tubing wall (wall thickness is .065 in.), the tube(s) must be repaired.

NOTE:

Cowling may require removal to adequately access and accomplish inspection and repairs.
Remove cowling in accordance with S & M manual, Section 71-11-00.

4. If damage to tube(s) does not exceed 10% of wall thickness, polish out damaged area, clean adjacent area of tube damage, prime the polished area with High Temperature primer, and paint with High Temperature Gloss Black paint.

ENGINE MOUNT TUBE REPAIR

5. If tube(s) damage exceeds 10% of wall thickness, repair tube damage in accordance with the M20K Service and Maintenance Manual, Section 51-12-01, paragraph 1, and Figure 51-1.
6. Clean welded repair area. Prime repaired area with High Temperature Primer. Paint repaired area with High Temperature, Gloss Black paint.