

Maule Aircraft Corporation

SPENCE AIR BASE - MOULTREE, GEORGIA 31768 - PHONE 912/985-2045



October 8, 1975
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SERVICE LETTER #33

Subject: Exhaust Manifold Cracking

Models Affected: M-4-210 Series, all serial numbers; M-5-210C Serial number 6001C through 6085C.

Compliance: Recommended within the next 25 hours of engine operation.

Authority: This Service Letter is FAA Approved.

Background: There has been noted a series of exhaust manifold cracking incidents, involving the old single stack exhaust system (Maule P/N 5081X), which appear to be other than normal random failures. All have occurred on the right side, generally around the outlet tube from the right rear cylinder. The cause of these failures has been traced to the improper installation, at some time after leaving the factory, of the tailpipe.

The upper end of the tailpipe is formed to slide over the exhaust manifold outlet tube and the two are joined using a "U" clamp with an integral pin which engages matching holes in the exhaust manifold outlet tube and the tailpipe. This pin itself is sufficient to keep the tailpipe firmly attached to the exhaust manifold outlet tube, so long as the "U" clamp is in place. This attachment arrangement was specifically designed to allow the tailpipe freedom to move relative to the exhaust manifold.

In the course of maintenance or periodic inspections, it appears that some well-meaning mechanics have been tightening the "U" clamp until there is no play between the exhaust manifold outlet tube and the tailpipe. During the shaking characteristic to the IO-360 on start-up and shut-down, the now rigid tailpipe shakes accordingly. All of the stress resulting from shaking this long, heavy "pendulum" is absorbed by the right side of the exhaust manifold, especially the rear cylinder outlet tube. The exhaust manifold was not designed to take this severe punishment, and eventually something will fail.

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Action to be taken: Inspect the tailpipe-to-exhaust manifold connection described above. The "U" clamp should be sufficiently loose to allow a minimum of one inch of free motion of the tailpipe, measured at the outlet end. This free play should not require undue force, and the exhaust manifold should remain motionless during movement of the tailpipe.

 If your tailpipe does not have this free play, loosen the "U" clamp until it does. If this necessitates loosening the "U" clamp to the point of disengaging the locking pin, the end of the tailpipe should be "swelled" some, the tailpipe reinstalled, and again checked for freedom of motion.

Note: For the past six months the Maule M-5-210C has been produced with a new, greatly improved, dual muffler system. This system, having two smaller "free floating" tailpipes, is not subject to cracking such as described above.

 This is not it's primary advantage, however. The new dual system is a muffler system, rather than a simple exhaust manifold. This results in a noticeable decrease in exhaust noise. Another advantage is that each muffler is fitted with a larger heater muff, which means that heater output is more than doubled.

 This new dual muffler system can be installed on all Continental IO-360 powered M-4's and M-5's, and sufficient quantities are now available for retrofit. The price is \$1090.00* FOB Moultrie. To order, specify the IO-360 Dual Muffler System and Additional Cabin Heater Inlet Retrofit Kit.

* Price is subject to change without notice.

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Compliance Record

Service Letter #33

Aircraft Serial Number _____

Aircraft Registration (N) Number _____

This is to certify that, with regards to service letter #33 (check one box):

- The tailpipe has been inspected and the freeplay is satisfactory as per service letter #33.
- The tailpipe has been inspected and the freeplay has been adjusted to comply with service letter #33.
- I no longer own this aircraft.

Sold to: _____

Address: _____

City, State, & Zip _____

Certified by (Signature) _____
(Print Name) _____

Title (Owner, A & E, IA, etc.) _____

Date _____

Return this compliance record to "Engineering Records", at Maule Aircraft at the above address.