Broken Trailing Edges On A Super Cub

Cub Club member Steve Johnson writes with this problem: I have a PA-18-105 SP with a 135 HP engine that has a recurring problem of the trailing edges of the wings near the fuselage (no flaps on this bird) getting hit with enough prop was that the 'A' trailing edge channel breaks from vibration (I guess). I just had the wings recovered 50 hours ago and it is broken again. Before I get it patched, do you have any suggestions on what I might do to keep it from recurring?

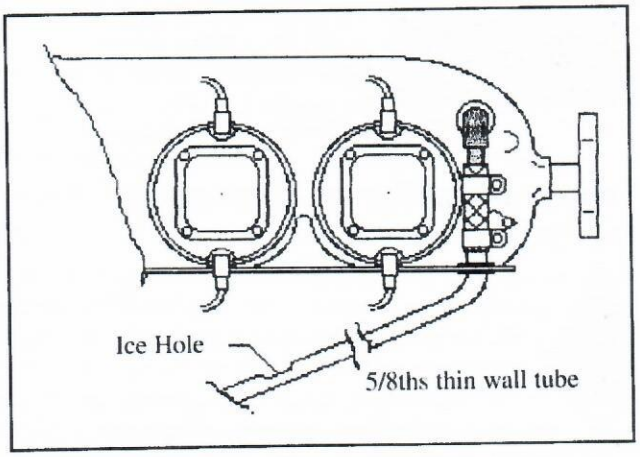
Cub Club member and well-known restorer Mark Drath offered this response: The false spar (trailing edge) on a 105 SP does not extend and attach to the rear spar like on a flap equipped model. It is more J-3 like and the entire wing root area is subject to a lot of vibration. Larger engines, longer props, make the vibration much worse. On any Cub with a larger engine the false spar, rear fuel tank cover supports and any other wing root skins need to be in excellent condition before cover is installed. These components vibrate constantly in flight and fatigue quickly.

Repairing them will only create stress points adjacent to the repair and they will fail again in a short period of time. The best thing to do is to replace any cracked component in this area with an entirely new component. If these skins are found to be cracked, they should be removed to inspect the ribs underneath. If the skins have cracked, the ribs they are attached to are probably broken also. I always add a few more attach points (screws) between the trailing edge and ribs than were originally installed. Reinforce the ribs in the area of the screws if needed.

Make sure the false spar is as tight as possible against the ribs before screwing it down. I GENTLY use ratchet straps to pull trailing and leading edges into place while attaching, but be careful, it would be very easy to crush components doing this. If they are not installed tight, the fabric will pull them in tight, creating stress points and lots of cracks.

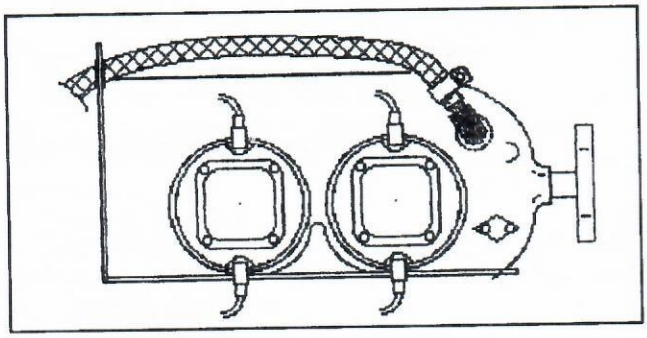
Oil Breather "Fixes" on Continental Engines

Nearly every owner of a Continental powered aircraft has had the problem and is looking for the cure for the oil smears and streaks on the landing gear and belly of their airplane. The routing and exit of the oil breather line cause most of these streaks and smears. Even if the loss of oil is small, only a tiny amount of oil makes a big mess on the belly when combined with airport dust and dirt.



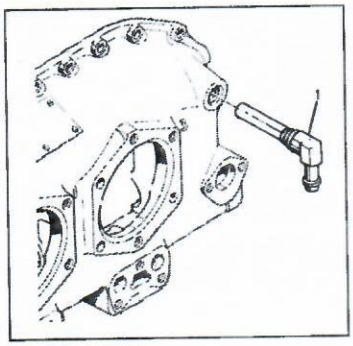
The "Normal" installation, as built, showing how the breather fitting is pointed vertically downward from the crankcase.

Talk with a half dozen A&P/IA's and you'll get a half dozen different recommendations for how to correct the problem. One of the tried methods is to run the breather hose, not tube, up and over the engine so as to have some runback of the oil. Continental had done a breather oil loss "cure" on the O-200's but it wasn't explained and there was no part number listed anywhere.

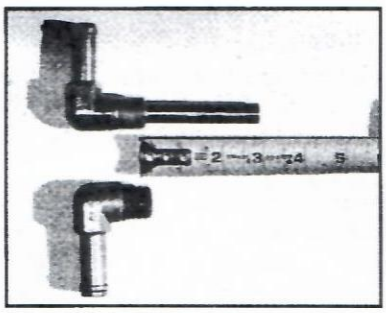


Hose over the top. The oil which condenses on the walls of the rising portion will return to the crankcase. Also, don't forget the breather relief hole, preferably placed behind the vertical baffle.

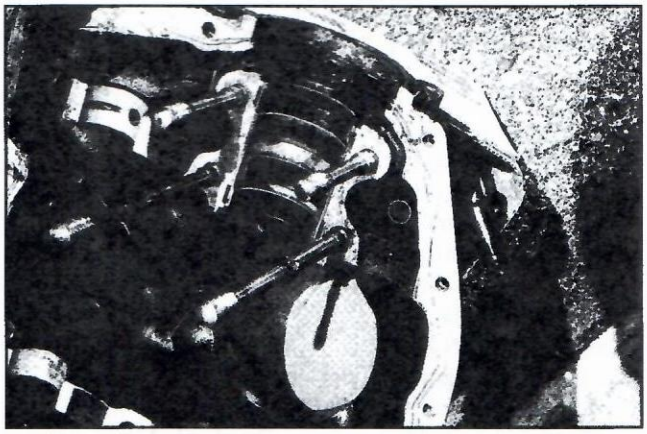
After doing some serious digging among the various Continental parts and service manuals, the Continental recommended "cure" could be found in the O-200 service manual.



Their cure was to modify the brass right angle breather tube fitting (part number AN 842-10) which screws into the top right had corner of the engine and attaches to the hose leading to the breather tube. The modification is to attach a tube to the end of the fitting which goes into the engine. The purpose of displacing the pickup opening of the fitting is to "hide" the opening from the droplets of oil flung by the cam and the front gearing.

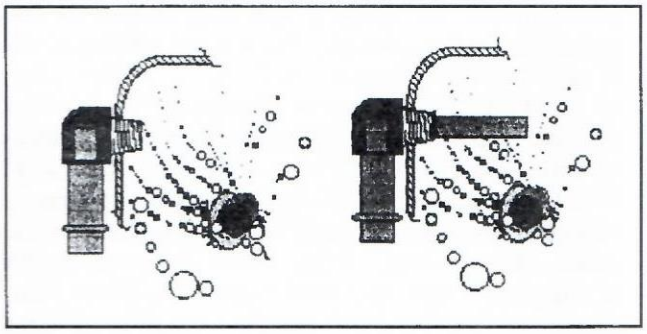


Comparing the stock breather tube to the modified breather tube. The modified version has an approximate 2 3/4" extension that is inserted into the breather tube cavity on the crankcase.



This view of the right side crankcase half shows the modified breather fitting installed. The extended breather tube is still recessed within the cavity and does not interfere with any component engine parts.

The Continental assembly (the two pieces joined) number is 633182, but it is almost impossible to find in the parts catalog. It is made up of the usual AN 842-10 fitting and the new tube; the new tube's part number is 633250 but it isn't in the parts catalog. It is recommended that you have one made and sanctioned by the A&I versus buying it from Continental because the price seems to be outrageous. In the 2000 catalog it was listed at nearly $240.



The two sketches tell the story. The added tube is copper, brass or steel with the OD machined to fit inside the bored out portion of the AN 842-10. The difference in OD of the pipe and the ID of the fitting should match the process used to join them – about five thousandths for brazing. Brazing is stated to be compatible with the other materials of the engine.

On the left, a stylized view of the oil droplets flung toward the opening of the breather's AN fitting. Some of the droplets are captured in the fitting and are blown out the breather and on to the belly. On the right, the extension is shown and indicates how its opening is not subjected to the ingestion of the droplets of oil.

INFORMATIONWANTED/REQUESTS

- In light of what has happened to our flying privileges in Class B Airspace, has anyone installed a transponder and encoding altimeter in a Cub? If so, or even if you're considering such an installation, would you contact the Cub Club? We have some members that are considering this installation and need some advice (or paperwork) on how to go about the installation.
- Drawings and/or specs for the tail brace cables to replace flying wires that will satisfy the Service Bulletin a J-2.
- Photos, drawings, etc., that accurately show the paint scheme and colors on the RAF "Flint Fire" J-3 Cubs.
- 337 for installing a cylindrical fishing pole tube in a J-3/PA-11 fuselage
- 337 for installing shoulder harness in a Piper J-4.
- Drawings for building both the upper and lower door halves for a J-3.
- 337 for wheel pants on a J-3.
- Source for J-3 & J-4 fuel shut-off valves.
- Source for PA-12 fuel shut-off valves.
- 337 and drawings for installing Edo 1400's on a PA-18. Must include measurements for the fuselage fittings.
- Drawings for the top deck assembly for a post war Cub
- STC for installing hatches in the top of EDO 1320 floats used on a '46 J-3

Editor's Note: *If you can help supply any of this information, it would sure help out a number of Cub Club members. Please contact the Cub Club if you can help with any of these requests.*

Transponder Installation in a J-3?

Submitted by Jerry Rootlieb, 1005 Seal Way, Seal Beach, CA 90740. Phone 562.596.7298 or work 714.375.2816. E-mail: Rootliebj@fvsd.k12.ca.us

I own a 1938 J-3 Cub, NC21506, which does not have an electrical system. I called ATC the other day and asked for the waiver to fly through enhanced Class B airspace and was told no waivers were being granted. My only option at this time is to install a transponder. I live in or under Class B airspace and most of the flying I do is in Class B airspace. Does anyone have information about installing a transponder in a Cub without a generator? Any information you may provide would be greatly appreciated.

Editor's Note: *Jerry was one of several members who contacted us with this question. Do we have anyone out there that can offer some advice? Please contact the Cub Club if you can help in any way.*