

You're not finished until the paperwork's done.



Record and inspect

Always keep a 'what if?' in the back of your mind when inspecting your aeroplane, and always keep a note in your log book



Well, here we are again, the start of another year. I hope that you and yours had a great Christmas (though as I'm writing this before the festivities – in the middle of December! – due to our printing deadlines, I'm not sure whether I've had, or am about to have, or even want, a happy Christmas... where am I? Somebody turn the lights on).

Thank you by the way, to all of you who have sent in your thoughts and comments regarding the bit of brilliant engineering seen in the photo featured in the Christmas quiz (deadline 2 January, 2009). I will post a selection of answers and announce the winner in the February issue of Safety Spot.

The winner, by the way, will be selected by a panel headed by the Chief Inspector, Ken Craigie. Now, let's talk about aeroplanes.

This time of year is classically a quiet time for sports pilots: grass runways are often flooded, it's freezing cold and, because of Permit rules, the machines have to be tucked up in their hangars before it gets dark. Naturally, no flying means reduced reports

about airworthiness problems, which has given me the chance to review some of the more 'day to day' items that you send in.

Thank you for all your input; remember, this magazine can only ever be as good as the stuff you send in, so please keep the photos and stories coming. I'm happy to keep your name out of a report but, in my experience, nobody thinks less of an aviator for 'coming clean' about a mistake made. Actually, we're all in their debt.

LOG BOOKS

I had a letter the other day from one of our Hampshire Inspectors, Robin Dispain, who pointed out that he is coming across an increasing number of 'badly' – or perhaps 'incorrectly' – filled out Aircraft Log books.

Robin has been a PFA/LAA Inspector for over 20 years now and has a previous life as an engineering training manager for a major airline; he appreciates the need for good record keeping.

Maintenance ID#s and ADs	Item	Subject	Date & Time of Completion	Method of Completion	Checked By	Inspected By	Time Completed (See Entry No.)	Signature (See Entry No.)
144-1004	Oil	Oil Change - 1000 hrs	1.12.09	1000 hrs	[Signature]	[Signature]		
144-1004	Annual	Annual Inspection - 1000 hrs	1.12.09	1000 hrs	[Signature]	[Signature]		
144-1004	Engine	Engine Oil Change - 1000 hrs	1.12.09	1000 hrs	[Signature]	[Signature]		
144-1004	Propeller	Propeller Inspection - 1000 hrs	1.12.09	1000 hrs	[Signature]	[Signature]		
144-1004	Brakes	Brake Inspection - 1000 hrs	1.12.09	1000 hrs	[Signature]	[Signature]		

An example from a typical aircraft logbook entry shows the level of information required.



RAF 2000. Hidden rudder cables are a poor inspection feature.

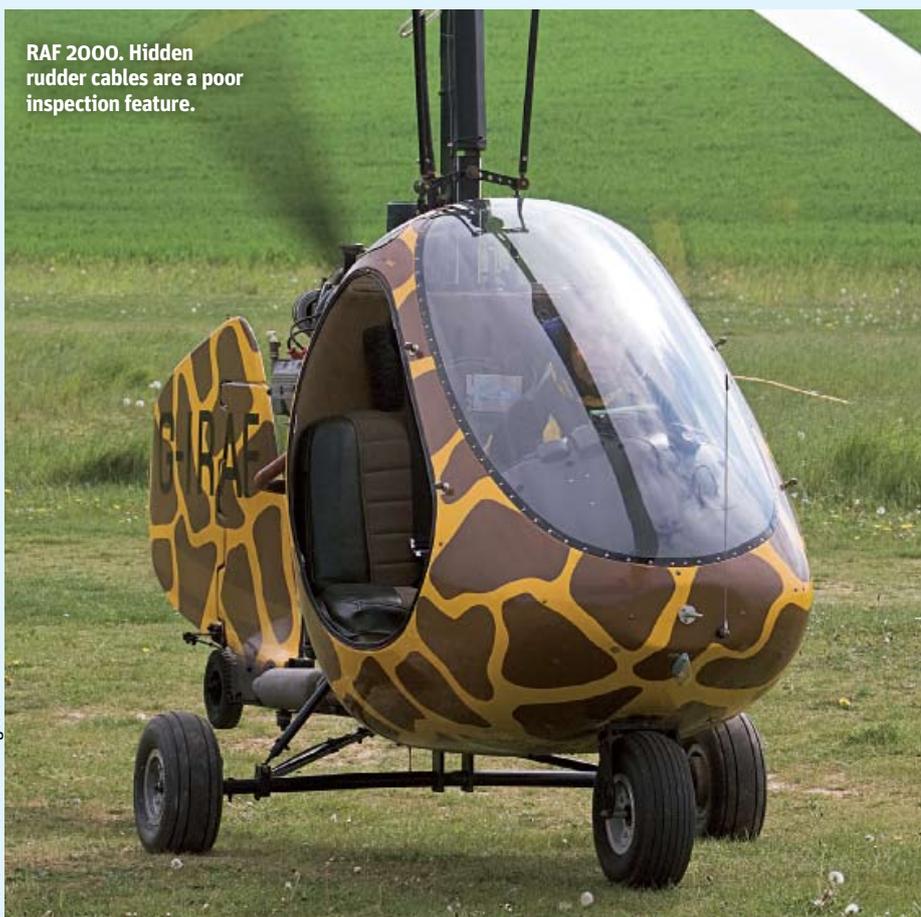


PHOTO www.airteamimages.com

This Rudder cable has been failing for ages



I feel like a pot calling the kettle black here, as I am terrible at keeping paperwork up to date. I shall make it one of my New Year's resolutions to get my log books up to date.

I am sure that many of you reading this will identify with my lack of administrative skills, but good record keeping is essential for safety reasons. It might be, at some future time, that a component on an airframe is found to fail after a certain number of hours; the designers may put a 'life' on this part. You will need to know how many hours the airframe has done to be able to comply with these changes.

I know that owners operating their aircraft under the LAA banner will have a variety of histories, many are ex-service pilots where the Form 700 would be the only maintenance paperwork encountered. Airlines often have people to do that sort of thing and, apart from signing off an acceptance, so pilots never see maintenance log books.

It's an Air Navigation Order requirement for the operator of an aircraft to keep up-to-date log books; in practice, this means that you get seven days to 'do the business'.

There is a requirement to keep a log book, for the airframe, each engine and each variable pitch propeller. Each log book comes with three sections:

Part A. This is where you record the hours. It's not necessary to record each and every flight, but totals and number of landings are required. It is also the section where any maintenance work should be recorded and is normally called the white section. All work recorded must be signed off, the authority recorded (ie Inspector number) and dated.

'It's an Air Navigation Order requirement for the operator of an aircraft to keep up-to-date log books'

Part B. The green part; this is for recording regular checks.

Part C. The pink part is for recording the modification status of the aircraft. The most important section of this part for the light aircraft operator is the last bit, 'Repetitive Inspections' – for fairly obvious reasons. It is not necessary to fill in each and every last job done on an airframe (this should be done on a worksheet designed to list each operation), but it should 'point the way' to this worksheet where one is used.

Take the time to keep your log books in good order and you'll go a long way to keeping your Inspector happy!

RAF 2000 GTX-SE RUDDER CABLE FAILURE

I wonder how many of you are wondering what an RAF 2000 is. Here's a clue: the LAA look after 16 of them and we've got 10 projects registered. Got it? Ah!

Another clue: it's a two-seater with a very high wing loading! OK, give up?

The 'R' doesn't stand for Royal, but Rotary. You've got it, it's a Rotary Air Force 2000 Gyroplane. I suspect that you knew that all along.

Have a look at the picture of the broken rudder cable above. It's the first time in my career that I have actually seen a primary control cable corroded through.

Thanks to the owner of the gyroplane, Ray Harris, for passing the evidence (which I suspect was surreptitiously passed under a folded newspaper with a whispered, "Take a look at this Guv"!) to my colleague Andy Draper at Splash.

I will come clean here and say that I have never flown a gyroplane. It's not through any apprehension regarding autogiros, just lack of opportunity, so, I am not sure how important rudder cables are on these machines.

However, having consulted a number of experts in this field of aviation, their view is that the rudder is essential on this, basically yaw unstable, machine. (I learnt to fly a helicopter years ago and had to practice landing without a tail rotor which was, as I recall, a pretty scary business – and rather hit or miss).

I gave Ray a call to ask him what had happened. He explained that this cable is basically un-inspectable, enclosed as it is in the structural tail boom within an outer, Bowden cable-like, sheath.

This aircraft has done about 100 flying hours and was first registered in 1996. Ray explained that the rudder felt a little notchy, so he asked an assistant to hold one end and applied a bit more grunt.

I asked him how important he thought the



Ultimately chaffing can, as in this case, cause a fire.

rudder is on these machines and he replied, "Very. Normally flying around requires a steady application of rudder to balance the aircraft. Landing sideways would be a tricky manoeuvre and not one I would recommend."

Clearly there has been a maintenance failure here and thanks to Ray for letting us know about it.

It's a pretty poor design that doesn't allow for regular inspections, especially when this concerns critical components; we will be reviewing this design weakness at one of our regular Airworthiness Review Meetings in the New Year. When did you last check your difficult-to-see items?

'A second or so later, I saw a tongue of flame appear with the smoke. I switched off and grabbed my BCF fire extinguisher'

CHAFFING

I've talked a lot about corrosion in its various forms over the last few months, but it's not the only preventable thing that can cause premature wear or, indeed, lead to a failure. One very common and often overlooked problem is that of chaffing. One of our Inspectors, Dick Davison, is on a mission to eradicate it from the LAA fleet,

with, incidentally, my full support.

Dick looks after a Eurostar owned by LAA member Cedric Flood who recently nearly lost his aeroplane primarily because two bits were rubbing together. I will let Cedric take up the story in his excellent report:

"On Sunday, 26 October, I changed the RPM gauge on TJ as the old one was suspect. After the change, I ran the engine to check the gauge. It was working OK and I ran the engine warm, but couldn't do a full power check as the aircraft was standing in pools of water. I decided I would do a short flight and so I jumped out to remove tie downs, chocks etc. When I returned to the cockpit, the engine was still warm, of course, and, as always, reluctant to start. The first try of about three to four seconds produced not a splutter. I paused, thought maybe it had cooled down, so tried again with a bit of choke (mistake!). Once again, not a cough. After a pause, I tried a third time, no choke, and this time the engine fired a couple of times, but, as it did, I saw smoke coming from the starboard side of the cooling air intake at the front of the engine.

"A second or so later, I saw a tongue of flame appear with the smoke. I switched off and grabbed my BCF fire extinguisher (on the cockpit floor beneath my legs). Quick as a flash, although that's a relative term for a septuagenarian, I dashed round to the front of the aircraft, smoke



On casual inspection, the cable looks fine – but it isn't!



pouring from the air intake, and I emptied the extinguisher into it, finishing by putting the last of the extinguishant into the oil check flap. The smoke dissipated."

Once an engine fire takes hold there is often nothing that can be done, so well done to the fleet-footed Cedric. In his report, Cedric muses over the possible cause of the engine fire; some of the other members in his club suggested a stuck exhaust valve causing a blow-back through the carburettor and, with this in mind, Cedric called Rotax guru Conrad Beale, who agreed that this was a possibility, but had never heard of it having ever happened before. Cedric went back to the airfield to have a closer look. This is what Cedric goes on to say.

"Next day, back to the field. I removed all the cable ties holding the braided cable to the engine bearer, and then could twist it round to examine it. The screening was damaged over about half an inch, so I clipped it to open it up more to see the two wires inside. I then saw that the wires were also damaged. One was severed almost all the way through, and it was apparent that there had been arcing across the broken wires. I had found the ignition source of the fire."

The wiring harness had been touching the drip tray under the carb, and had chafed through. When the carb and filter are fitted, it is extremely difficult to see this area. No excuse!

It is essential that you keep your eyes open for signs of chafing and, when you spot it, deal with it immediately. Personally, I don't like that often-used method of securing – the ubiquitous 'single tie-wrap'. If you have to use a tie wrap to secure a pipe or wire to, for example, an engine bearer,



Always carry out further inspection of internal wiring if ANY chaffing is evident.

don't use one, use two, and interlink them. By securing the pipe or wire in this way you also separate the bits, which makes it easier to inspect and makes chaffing impossible. Be particularly careful in the area of the Rotax carburettor drip tray. I get lots of reports about pipes wearing through against its sharp edges.

When you are inspecting your aircraft, try to

keep in your mind the 'what ifs', think about items with a potential for failure; you're not just looking for broken or worn parts. It's always the things that you haven't thought about that catch you by surprise, so try to think about everything. Keep the reports coming...

Happy New Year and, as always, fair winds.

"The wires were damaged. One was severed almost all the way through, and it was apparent there had been arcing across the broken wires"

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