SUMMER 2017

Clued up

Civil Aviation Authority

SAFETY MATTERS FOR GA PILOTS

INSIDE

DOING IT YOURSELF

How new pilot/owner rules affect you

PLUS / NEWS / MEDICAL CHANGES / ***LISTENING SQUAWKS*** / CIRCUIT ISSUES / ***INCIDENT REPORTS***

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THE SIMPLE ART OF LISTENING

Sometimes the simplest ideas are the most effective. Take the transponder codes known as 'listening out squawks'. Although their use is entirely voluntary they have radically reduced the number of airspace infringements since they were introduced over a decade ago. To the uninitiated, most UK airports have been allocated a dedicated squawk code which any pilot flying in the vicinity of should set into their transponder – ATC will then know the pilot is listening-in and will call up on frequency if the airspace boundary starts looming large.

This straightforward process aids the pilot's situational awareness, reduces the workload of the controller, and ultimately protects commercial air transport. To acknowledge their success we pay a visit in this latest edition of *Clued Up* to Bristol Airport's control tower to see Listening Squawks in action. You should also find inside a card displaying all of the UK's current codes for you to keep in the cockpit (if yours is missing you can download one at the address at end of this piece, or by clicking here if you are reading this digitally).

Talking of simplification, the medical requirements for private pilots on 'national' licences have become much easier to meet. Pilots with these 'non-EASA' licences can now simply self-declare their fitness-to-fly through an online form. They no longer need a Class 2 Medical certificate from an aeromedical examiner or, even a GP counter-signature. The CAA's Dr Ryan Anderton explains the process, and gives advice on the health issues pilots self-declaring should be aware of.

Incidents in the circuit keep cropping up in accident and occurrence statistics, so we take a look at how the adoption of 'threat and error management' can help improve the average pilot's circuit flying. We also have an update on the latest maintenance rules and regulations. And, with all the latest safety news and developments there should be something here for everyone.

Have a long and safe summer of flying.

Tony Rapson
Head of the General Aviation Unit

A copy of the latest Listening Squawk card is also available from airspacesafety.com/downloads

'This straightforward process aids the pilot's situational awareness and reduces the workload of the controller'

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Graham Brown

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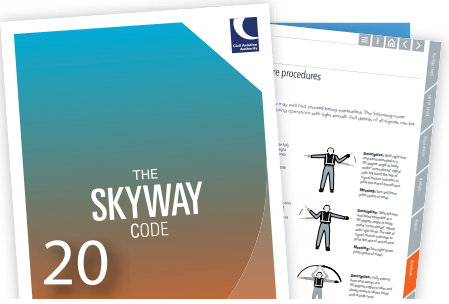
What's inside

Clued Up magazine brings you the latest news in aviation safety, topical issues, advice and contribution from pilots, air traffic controllers and safety experts from across the UK's General Aviation community



Six ways to minimise an Airprox

THE UK AIRPOX BOARD HAS come up with six actions pilots should carry out every time they fly to cut the risk of mid-air collisions.

The six tips are part of a *Five Seconds To Impact* campaign launched at Easter (2017) which includes a magazine, posters, leaflets and a video. "Mid-air collisions are one of GA's major safety risks," said UKAB Director Steve Forward. "While significant progress has been made over recent years to reduce the number of Airprox incidents involving commercial aircraft, the same cannot really be said of private flying.

"If GA is to enjoy similar safety gains then pilots need to concentrate on their airmanship skills, make sure they understand correct procedures, avoid distractions and keep a good lookout. It's clear from studying Airprox incident reports over a number of years that look-out and prioritisation of cockpit tasks are the two key areas that GA pilots should be focused on. There are also some effective and relatively inexpensive electronic systems now on the market that can help by cueing pilots to other similarly equipped aircraft, and these provide real gains in enhancing situational awareness."

The 'Avoiding mid-air collisions' video can be found at *airproxboard.org.uk* or by clicking *here*

The six actions are:


LOOKOUT

EYES
Look out and develop a robust scan technique


LISTEN ON THE RADIO

EARS
Communicate by talking on and listening to the radio, both to make your intentions clear and to maintain situational awareness of others


DEFENSIVE FLYING

FORESIGHT
Fly defensively, with vigilance, courtesy and consideration of others, also known as 'airmanship'


PROFESSIONAL KNOWLEDGE

INSIGHT
Regularly review your understanding of ATC services, rules of the air, circuit patterns and procedures


ELECTRONIC CONSPICUITY

ADVERTISE
Make your presence known through conspicuity measures (electronic and visual)

PRIORITISING TASKS

PRIORITISE
Time-share cockpit tasks and avoid distractions which may compromise your lookout

In addition to the 'Avoiding mid-air collisions' video, you can subscribe to the Board's YouTube channel to get a notification of when new videos are added.

And an 'Airprox of the month'

Every month, the UK Airprox Board Director highlights an Airprox at *airproxboard.org.uk*. Following the webpage is a good way to understand how such incidents can happen.

As this issue of *Clued Up* went to press the most recent 'Airprox of the month' was Airprox 2016230, a Category A incident that occurred as a Sportcruiser was trying to join the circuit at Dunkeswell.

"There were multiple runways in use, the weather was not sparkling, and other aircraft were also joining to various runways or circuit points," he writes. "Perhaps between a rock and a hard place, the Sportcruiser pilot ended up flying in the opposite direction to a C42 that was downwind. The key lesson was to make an early decision whilst marshalling to join rather than pressing on in the hope of gaining a fuller understanding during the join."

Gliding sites that *are* active

SOME GLIDING SITES HAVE been labelled incorrectly on the most recent half-mil charts (Edition 43 2-17).

Seven gliding sites that are marked as disused and abandoned are actually still active; they are **Wethersfield**, **Upottery**, **Aston Down**, **Saltby**, **Metfield**, **Burn** and **Driffield**. The sites are mentioned in NOTAMs too. Pilots who use eVFR charts can expect a software update from their provider.

You can also subscribe to a VFR chart amendment update service on the *NATS AIS website*, where new, amended and withdrawn information for each CAA VFR chart edition is posted.

Got a new set of wheels?

PHOTO: JOHN COUTTS

THE PACE OF DEVELOPMENT in the world of paramotoring is pretty rapid at present – there is now increasing demand to move away from simple foot-launched aircraft.

A 12-month exemption to the Air Navigation Order (2016) has been issued so that paramotors or self-propelled hang-gliders can be fitted with 'devices to support weight during take-off' such as wheels, with no change to regulatory requirements associated with flying them.

The addition of wheels to a paramotor would otherwise have classified it as a microlight aeroplane, meaning it would need a pilot's licence to fly. The CAA will monitor how the machines and pilots get on over the next 12 months, saying it will work closely with the community flying them.

Before the exemption, people who wanted to fly a paramotor with wheels needed a National Private Pilot's Licence (NPPL) with a microlight class rating – even if it was otherwise identical to a foot-launched version.

To meet the exemption, the paramotor must have an unladen mass (including full fuel) of no more than 70kg. An additional 5kg is permitted if there's an emergency parachute.

To limit the performance, the chassis and wing combination must have a stall speed (or minimum steady flight speed in the landing configuration) of no more than 20kt. This aims to ensure that the overall performance and kinetic energy of the aircraft is kept similar to existing foot-launched aircraft. The exemption is also limited to single occupancy.

The full exemption ORS4 No. 1224 can be found on the CAA's website.

Get your 8.33 radio cashback

OVER THE SUMMER AIRCRAFT owners who have fitted 8.33kHz radios will receive some of the costs back – and there's still time to fit a new radio and claim a rebate.

The CAA has €4.3m of EU funds for UK owners to make the transition, and while 2,000 sets have already been fitted and claims submitted towards the costs involved, a large number of aircraft owners haven't replaced their radios which must be done by the end of 2017. A new claims phase is now open until the end of September. A further phase may follow should any funding remain available..

Receipts (to show that payment for the equipment has been made) must be sent in and all claims will be formally assessed after the closing date. The CAA's website contains full details of the EU funding, including the eligibility criteria document *CAP1501* and the claim form itself.

Moving to 8.33kHz channel spacing means that three times the number of channels can be created within the VHF band compared to the old 25kHz system and solves the problem of us all running out of frequencies.

Clock ticking on PPL licence conversions

IF YOU HAVE A UK 'national' or 'JAR' PPL there's less than a year left to make the necessary arrangements to convert it to a European Aviation Safety Agency (EASA) licence.

European regulations have introduced a number of new licences which are replacing those issued by national authorities across Europe, so all UK private pilots flying 'EASA aircraft', which includes most popular general aviation aeroplanes and helicopters, will need an 'EASA PPL' after 8 April 2018 to remain valid. Pilots flying non-EASA or Annex II aircraft such as microlights and vintage aircraft can remain on national licences issued by the CAA.

The deadline will be the culmination of a six-year process to standardise pilot licensing across the EU. EASA licences allow pilots to fly under the privileges of their licence in EASA aircraft registered anywhere in Europe and have a lifetime validity.

While JAR licences will continue to be valid until their expiry date they cannot be renewed after that and will have to be converted to an EASA licence (the costs range between £40-£72). Since April (2017) only an EASA medical certificate will be accepted with an EASA licence. EASA licences have a lifetime validity.

More information on which licence to change to, and how to to apply, can be found on the CAA's website *caa.co.uk*

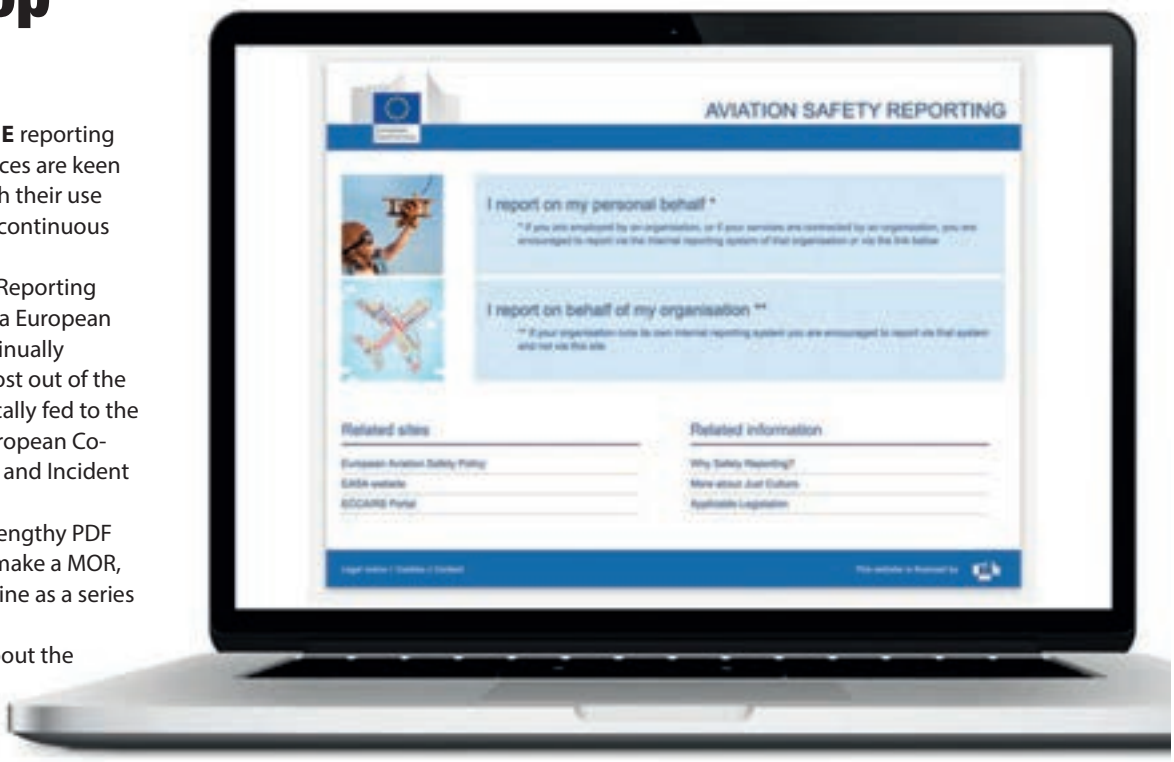
Help develop MOR portal

DEVELOPERS OF THE ONLINE reporting portal for mandatory occurrences are keen to hear of any pilots' issues with their use of the website to help with its continuous improvement.

The Mandatory Occurrence Reporting portal (*aviationreporting.eu*) is a European system, yet the UK CAA is continually developing ways to get the most out of the ECCAIRS data that is automatically fed to the system (ECCAIRS stands for European Co-ordination Centre for Accident and Incident Reporting Systems).

Further to this, instead of a lengthy PDF document describing how to make a MOR, the guidance now appears online as a series of webpages.

Any pilots with questions about the MOR portal or the reporting requirements can email *Safety.Intelligence@caa.co.uk*



Simpler certification for new light aircraft designs

AT THE AERO SHOW in Friedrichshafen, EASA's Certification Director Trevor Woods presented updated CS-23 certification rules. These remove certain design limitations for manufacturers that will allow them to certify new light aircraft designs much more easily – and on a global scale too. Many light aircraft organisations and manufacturers have been working towards a more harmonious system for a number of years and this latest announcement seems as close to ideal as they can get.

"New designs will not be hampered by detailed prescriptive rules," says EASA.

The move to CS-23 in Europe takes place on 15 August 2017 and at the start of September in the U.S. (where it's called Part 23).

Keep up-to-date with SkyWise

SKYWISE, THE ALERTING APP that allows pilots to stay up-to-date with news, safety alerts, consultations, rule changes, airspace amendments and more has been updated.

If you already use the service you'll need to update the app to the latest version. For more, go to *skywise.caa.co.uk*

Have your say on how airspace can change

IF YOU'RE STILL IN the dark about how airspace classification and shape can change, you might want to read how changes will be made in the future.

Draft guidance was published in March on how a future airspace change process might work, and the draft (you can read it *here* or on the CAA website in the consultations section) describes how final decisions will be made.

Pilots have until 30 June 2017 to write a response, with the CAA's Policy Director, Tim Johnson, urging all to have their say.

"The views of local communities, airspace change sponsors and airspace users are all vital to shaping the way decisions are made in the future and we urge all groups to have their say on the draft guidance," he said.

PHOTO: GUIDO PLATZER - AUTOGYRO GMBH

Night rating for gyros

WITH GYROPLANES BECOMING INCREASINGLY popular in the UK, two major steps forward have been taken to broaden their use, including a night rating and a commercial pilot's licence CPL(G).

"With more commercially manufactured models available, we've been working closely with the gyroplane community to increase the opportunities available for gyroplane owners and operators," said CAA examiner Richard Craske, the man behind some of the recent changes in their oversight. "The UK's first ever gyroplane night ratings have been issued to instructors Ian Bryant and Steve Boxall. We asked Ian and Steve to help create the new rating because of their previous night flying experiences in other types of aircraft, as well as being gyro pilots," he added.

Ian and Steve are now working to gain the instructional privilege to teach at night. Once completed the night rating will be available to all PPL(G) holders who meet the minimum experience requirements. The first two CPL(G) have also now been issued to Steve Boxall and Phil Harwood.

Okay, listen up – or rather, listen out

HAVE YOU GOT THE LATEST Listening Squawks card? They've come free this year with the new 2017 VFR aeronautical charts and there should also be a card with the printed copies of this magazine.

The simple idea of listening squawks is designed to help pilots avoid busting airspace by tuning in to air traffic units to listen in (you don't have to say a word) and then select a transponder code to show that they are monitoring the frequency, allowing a controller to easily make contact if there is a risk of an accidental infringement.

If you don't have a frequencies card you can download one at *airspacesafety.com/listen*. For more on how listening squawks work, turn to page 11.

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HEAR'S THE THING

Listening squawks make life easier for everyone and you don't even have to say a word, so why wouldn't you listen in?

By Chris McGine

Take a look at the radar screen in the hushed environment of Bristol's air traffic control tower and you might be rather surprised by all the nearby activity, even on a weekday. There are a lot of aircraft around with plenty transiting close to the airspace, some up and down the Bristol Channel to the west, while others head north-south and vice versa inland to the east.

Those getting an air traffic service with a squawk code aren't an issue, but the others that aren't need a watching eye. The last thing the controllers want, or need, is someone busting their airspace, horizontally or vertically – not only does it potentially disrupt the airport's traffic, there has to be an investigation which means a whole load of unwanted extra paperwork – and, possibly, a fine for the pilot.

All of it can be avoided, though, by using a Listening Squawk, a simple idea aimed at helping pilots to avoid infringing controlled airspace and giving a radar unit more control of nearby traffic if they need it. It also has the spin-off of providing pilots with situational awareness of other aircraft and a safety net to contact should they need one.

The system launched initially some ten years ago in a few areas and more and more have joined in over the intervening period, but take-up by some pilots has been disappointingly slow in some places, raising the question of 'why?' when such a simple system is available.

Bristol has only had its Listening Squawk for a couple of years and I wanted to see how the system is operating in one of the newer areas. Generally, controllers across the UK are perplexed by pilots who fail to adopt the idea which is regarded quite simply as a win-win for both them and the controllers.

All a pilot has to do is pop the Listening Squawk code into the transponder (5077 in Bristol's case), tune the radio to the correct frequency and that's it.

There's no need to contact the controller, the squawk informs the radar controller ➤

How a listening squawk shows up

that the pilot is listening to transmissions on the frequency and can be contacted if necessary; it doesn't mean you will be called, just that you can be and it frees up ATC to monitor, rather than engage with, individual pilots because the code applies to a specific area and not the aircraft as in the case of a more normal squawk.

If the controller thinks an aircraft that's listening in might be about to infringe its airspace either horizontally or vertically, he or she will call up the pilot and give pointers of how to stay clear, which means no delays to the airport's traffic, no paperwork for the controller and no infringement issues for the pilot to explain.

And if you're wondering how a controller identifies an aircraft to talk to when others have the same squawk, if it is fitted with a Mode S transponder the aircraft's registration will show up on the radar screen, otherwise he or she will use ground features as an identification to let you know it's you they're talking to, so something like "Aircraft squawking 5077 at 2500ft over Severn Bridge" etc.

What's more, although it's not an air traffic service as such controllers are human and if they have the time and capacity they can keep an eye on a pilot's flight for other reasons, perhaps if someone simply appears to be lost, or an emergency.

'But with about 80 percent of pilots eschewing or abusing the service, the sense is one of disappointment'

What a listening squawk doesn't do is clear a pilot into the nearby controlled airspace or indicate that an ATC service is being provided. When leaving the area, pilots simply revert to squawking 7000, with Mode C if available, and carry on their way.

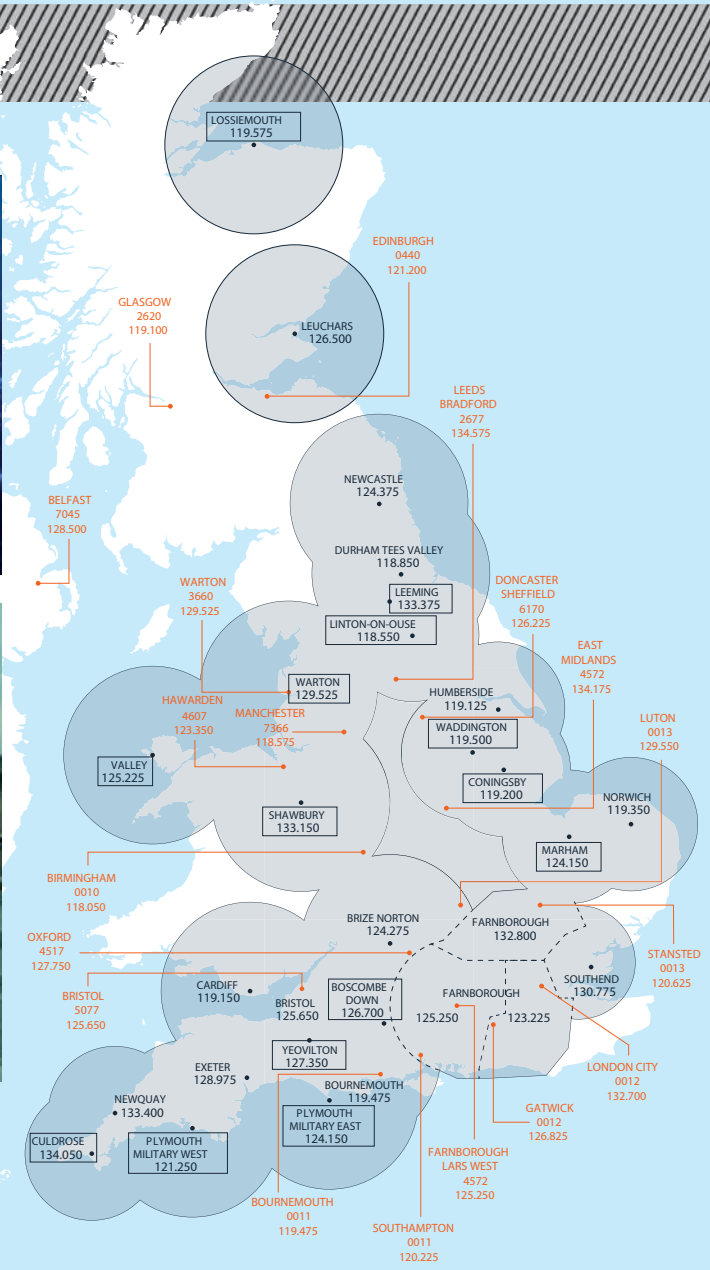
Trials have shown that listening squawk codes have played a large role in reducing the number of airspace infringements at the UK's major airports. Squawk examples include the airspace surrounding London, Luton, Birmingham and the low-level corridor allowing VFR flight between the class D airspace of Manchester and Liverpool.

But with around 80 percent of pilots eschewing or abusing the service, the sense in Bristol tower is one of disappointment, particularly because a number of controllers are GA pilots, too. And infringements continue.

Last year, Bristol Safety Manager Sid Michelmore had to raise the alarm following five infringements in ten days, four of which impacted on commercial aircraft with avoiding action being given by

A spider's web of airspace

Busy apron at Bristol



controllers to maintain safety buffers. More recently, there were three infringements on a busy Saturday, reinforcing the need for the listening squawk to be part of the drill, as common as a FREDA check as controlled airspace looms.

When I visited the tower at Bristol, Sid Michelmore described how some pilots unsure of how a listening squawk actually works dialled 5077 and then launched into a conversation with the controller when there was no need. Or, having selected the correct squawk code, some pilots then failed to tune in to the associated radio frequency and missed vital calls to them.

"The system is a win-win because it allows us to raise the alarm as aircraft approach our boundaries and give avoiding advice," he says. "It also means that a pilot has a direct contact with us if necessary, saving time and switching frequencies at a critical moment should he suffer something like an engine failure.

"But for some pilots, taking off means switching off, getting away from it all," he says with a resigned smile. "So we have no contact at all."

The tower has an investigation team that has to pursue airspace busts with the doggedness of a detective, using radar images and contacting local airfields to track down infringers and find out why the infringement occurred. But it seems even the threat of a costly court appearance and, potentially, a suspended licence is not enough to encourage some people to use the squawk code.

As well as the obvious threat to safety, infringers also cause major headaches for the air traffic team and major airlines. Take-offs and landings are cancelled and commercial traffic's fuel bill goes up as they are forced to execute a missed approach or extend their inbound routings.

Then there's the human factor: "These events create additional workload and paperwork," says Sid. "Lots of time and effort is involved in sorting through the facts after an infringement."

Watching the departures from the tower's top floor, it's clear that Bristol has a busy airspace that demands preparation and perfect procedures. But all too often some passing pilots are well behind their aircraft, he explains.

"The lack of preparation such as marking up a chart or looking up Notams and weather forecasts can lead to difficult situations. In addition to protecting the airspace, the Listening Squawk service helps us to stop these situations developing or rectifying a conflict.

"It turns a virtual aircraft into a real aircraft, a potentially dangerous situation into one which we can deal with because it's another safety net. Why wouldn't you use the service?"

And when should you start squawking and listening in? Bristol tower advises, for example, that pilots tune in around ten miles outside their airspace and pay particular attention to the busy north-south corridor east of the airport. That way controllers such as Sid Michelmore won't have to stare at their screens and ask: "Where's he going and what's he up to?"

TO FLY or not to fly...

Changes to the medical requirements for licences mean that more pilots can self-declare but you do need to be wary

By Dr Ryan Anderton, Speciality Registrar in Aviation and Space Medicine

Since last August (2016) the scope of self-declaration medicals has been widened and some EASA Licence holders can now validate their licence with a self-declaration.

This is valid for use on Annex II (non-EASA) aircraft. However, an EASA Part-FCL private pilot's licence or LAPL may not be validated with a self-declaration when acting as pilot in command of an EASA aircraft.

Article 150 of the Air Navigation Order (2016) makes an EASA licence valid with a self-declaration as if it were a UK national licence for use in non-EASA aircraft. The self-declaration replaced the old NPPL medical declaration and allows an EASA licence-holder or national licence-holder to exercise limited privileges in UK airspace

For some non-EASA licences, which allow more limited flying in lighter and non-EASA aircraft (such as NPPL and UK PPL), you might not require a formal medical with an AME or GP and can self-declare your medical fitness following the CAA online guidance.

A medical declaration is an affirmation of your medical 'fitness to fly' and may be used to exercise the privileges of a:

- EU Part-FCL Private Pilot Licence (PPL) to fly non-EASA aircraft;
- EU Part-FCL LAPL to fly non-EASA aircraft;
- National PPL (NPPL);
- UK PPL; and
- A UK Commercial Pilot Licence (CPL) Balloons that is restricted to commercial operation and the privileges of a UK PPL (Balloons and Airships).

Pilot health is as important as that of the engine and the integrity of the wings, and it's important to stop and consider whether you have any medical problems or are taking any medication that might affect your ability to fly safely today or in the future.

While flying for many pilots can feel like a normal everyday activity, it's important to remember that any deterioration in your health, however trivial it might seem, could have a much greater impact given the unique environment in the cockpit.

Tasks we usually find relatively straight forward or automatic such as navigation, orientation and even breathing can become a challenge if you're not well and at altitude. The sudden onset of pain in the sinuses, abdomen or anywhere else in the body which might not seem problematic on the ground, suddenly becomes distracting, incapacitating and an accident waiting to happen in flight.

In this scenario, thinking about your past and current health is even more important. If you are self-declaring it will be up to you to seek advice before applying for a licence when you are unwell, or if you are unsure if a change in fitness should stop you from flying.

Seeking such advice from an AME is wise. A history of medical problems that would invalidate a self-declaration and require that you visit an AME is listed above. If you don't see your medical condition on the list, but think it could be a problem, contact an AME for advice.

A GP or treating physician who is looking after your general health might not know you are a pilot. But even if you tell them, without specialist aviation medicine training the impact of a medical condition or medication on safe flying might not be recognised, and you could be advised that it is safe to fly when it isn't. A good place for your doctor to start looking is in the DVLA guidance which can be found online.

There's more information about the medical requirements and a link to the self-declaration form at caa.co.uk/General-Aviation/Pilot-licences/Medical-requirements/Medical-requirements-for-private-pilots/

IS THIS ME?

If you have, or have had, one or more of these conditions you must consult an AME.

- Being prescribed medication for any psychiatric illness.
- Bipolar disorder, psychosis or a diagnosis of personality disorder.
- Drug abuse or alcohol misuse or addiction (or conviction for drink/drug driving).
- Being prescribed medication or treatment for angina or heart failure.
- Cardiac surgical procedures including cardiac device implantation.
- Recurrent fainting or collapse (syncope).
- Unexplained loss of consciousness.
- Insulin treatment.
- Chronic lung disease with shortness of breath on exertion.
- Any neurological condition requiring medication.
- Seizures or epilepsy.
- Significant functional physical disability likely to impair safe operation of normal flight controls.

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Spanner time

With the move to self-declared maintenance some owners can have more responsibility for their aircraft – here's the ins and outs of it

By Gordon MacDonald

It might come as a surprise to many pilot-owners, but not everything EASA does is bad – that might be a tad controversial, but in the case of deregulating maintenance for private light aircraft it's true.

With the UK's Light Aircraft Maintenance Programme (LAMP) ending last September (2016), owners of ELA 1 aircraft (see panel on Page 18) need to transfer to a Self-Declared Maintenance Programme (SDMP) at the next Airworthiness Review before September 2017.

EASA is actually doing an effective job of deregulating maintenance on lighter aircraft not used commercially. The Self-Declared Maintenance Programme (SDMP), Pilot Owner Maintenance and CS STAN for fitting avionics without EASA approved modifications are three examples.

When EASA deregulate they do it by making the owner of the aircraft responsible for that deregulation. This isn't as bad as it sounds and if you don't want the worry (or the work…) you can still pay for engineers in your maintenance organisation to do it.

Before you carry out pilot-owner maintenance, it pays to spend some time reading the EASA pilot-owner maintenance regulations (M.A.803, there's a link at the end of this feature). It points to various paragraphs you need to read to understand the rules and regs involved.

SO WHAT CAN A PILOT-OWNER ACTUALLY DO NOW?

The scope is very specific but surprisingly large. It closely resembles all the normal jobs you would perform on the yearly annual maintenance. To list every single task would take many pages, but here's a flavour: pilot-owners (an important point, you can't do it for a friend) can change wheel bearings, tyres, brake pads, hydraulic fluid, engine/gearbox oil, induction/fuel/oil filters, seat harnesses, placards, change air-conditioning ducts, remove/refit doors, perform minor upholstery repairs and change radios (as long as they have quick-release connectors).

You can repair fairings and perform a fabric repair up to an entire rib bay in size, as long as no stitching is required. The EASA list has certainly made few CAMOs (Continuing Airworthiness Management Organisations) wince about how much freedom some owners have been given.

But when looking at the lists of what's

WHAT IS AN ELA 1 AIRCRAFT?

Aeroplanes (but not rotorcraft), sailplanes and powered sailplanes, with a Maximum Take-off Mass (MTOM) of 1,200kg or less, non-complex and not involved in commercial operations; balloons with a maximum design lifting gas or hot air volume of not more than 3400m3 for hot air balloons, 1050m3 for gas balloons, 300m3 for tethered gas balloons; or an airship designed for not more than four occupants and a maximum design lifting gas of hot air volume of not more than 3400m3 for hot air airships and 1000m3 for gas airships.

permitted, be careful to choose the correct one for your aircraft and type. For instance, you can remove/fit an engine on a self-sustaining sailplane but not on a TMG or an aeroplane. In some respects it's easier to list what tasks cannot be performed.

Maintenance tasks shall not be carried out by the pilot-owner when the task:

1 Is a critical maintenance task
2 Requires the removal of major components or major assembly and/or;
3 Is carried out in compliance with an Airworthiness Directive or an Airworthiness Limitation Item, unless specifically allowed in the AD or the ALI and/or;
4 Requires the use of special tools, calibrated tools (except torque wrench and crimping tool) and/or;
5 Requires the use of test equipment or special testing (eg, non-destructive, system tests or operational checks for avionic equipment) and/or;
6 Is composed of any unscheduled special inspections (eg, heavy landing check) and/or;
7 Is effecting systems essential for IFR operations and/or;
8 Is listed in 'Appendix VII' or is a component maintenance task in accordance with points M.A.502(a), (b), (c) or (d).
9 Is part of the annual or 100h check contained in the Minimum Inspection Programme described in M.A.302(i).

The criteria 1 to 9 listed above cannot be overridden by less restrictive instructions issued in accordance with EASA's 'M.A.302(d) Maintenance Programme'.

Shadow an engineer if necessary

Radios need to be quick-release

HOW DO I KNOW IF I AM COMPETENT TO PERFORM PILOT-OWNER MAINTENANCE?

Before carrying out any maintenance tasks EASA says pilot-owners must satisfy themselves that they are competent to do the work.

It's also your responsibility to familiarise yourself with the standard maintenance practices for the aircraft and its maintenance programme. If you aren't competent to do any of the jobs, you can't release it.

Put simply, if you are not sure how to do it to a high standard, then don't try. For instance, if you have never changed a tyre on an aircraft under supervision, now is not the time to give it a go…

SO WHERE CAN I LEARN HOW TO PERFORM THE TASKS?

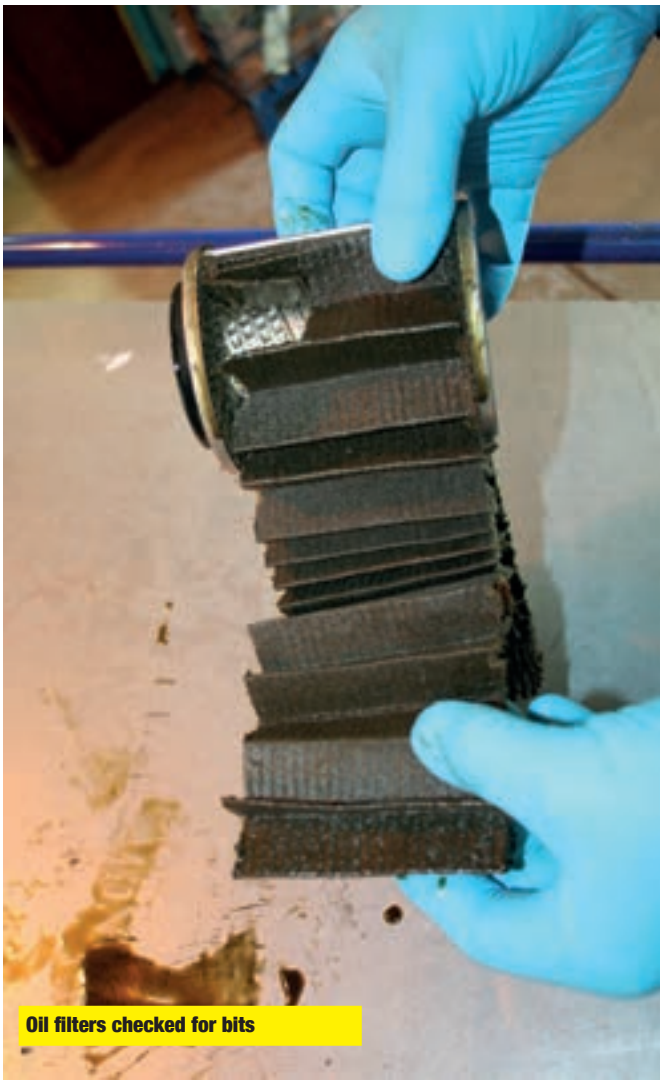
By far the best way is to shadow the engineer performing your aircraft's annual maintenance; you'll gain knowledge

'Don't be surprised if your CAMO has a very close look at your workmanship'

and practice on a lot of the listed tasks because many of them occur in the annual maintenance. Nb: for a lot of engineers the tasks include the vital one of making the tea and supplying biscuits!

WHERE DO I LEARN HOW TO FILL OUT THE PAPERWORK COMPLIANTLY AND WHAT IS A CRS?

For any pilot-owner task to be performed compliantly a Certificate of Release (CRS) to service must be signed (with licence number) once the job is complete, on a worksheet that specifies the task and then a logbook entry made.



Oil filters checked for bits

There is a section in EASA Part M on the exact wording required on a CRS. The relevant worksheets, CRS and parts lists must be embodied into the aircraft's records. You must give it to your CAMO within 30 days.

Don't be surprised if, come ARC time, your CAMO has a very close look at your workmanship and compliance with getting the CRS/worksheet and logbook entries correct. The best way to ensure compliance is to involve them before you start. Use their worksheets if they will allow it. If I want to perform my own 50-hour check using pilot/owner privileges, my CAMO will email me a complete work pack of what requires doing and relevant CRS/worksheets.

CAN I WORK ON MY FRIEND'S AIRCRAFT?

No. You must be a licensed pilot and owner of the aircraft of the aircraft you are working on.

You can do tyres and tubes

HOW DO I MAKE A WORKPACK?

Look at your own aircraft records for examples.

WHERE DO I FIND THE REGULATIONS?

EASA has published acceptable means of Compliance and Guidance material; you can find it at the following link if you a reading this digitally, or by going online and putting *self-declared maintenance* in the search box at *easa.europa.eu.*

WHAT IS A PILOT-OWNER?

EASA says the person must:

1. Hold a valid pilot licence (or equivalent) issued or validated by a Member State for the aircraft type or class rating and own the aircraft, either as sole or joint owner; the owner must be:
(i) One of the natural persons on the registration form; or (ii) a member of a non-profit recreational legal entity, where the legal entity is specified on the registration document as owner or operator, and that member is directly involved in the decision-making process of the legal entity and designated by that legal entity to carry out pilot-owner maintenance.

1. Privately operated means the aircraft is operated pursuant to M.A.201(i). A pilot-owner may only issue a Certificate Release to Service (CRS) for maintenance he/she has performed. In the case of a jointly owned aircraft, the maintenance programme should list:

The names of all pilot-owners competent and designated to perform maintenance in accordance with the basic principles described in Appendix VIII of Part-M. An alternative would be for the maintenance programme to contain a procedure to ensure how such a list of competent pilot-owners should be managed separately and kept. An equivalent valid pilot licence may be any document attesting a pilot qualification recognised by the Member State. It does not have to be necessarily issued by the competent authority, but it should in any case be issued in accordance with the particular Member State's system. In such a case, the equivalent certificate or qualification number should be used instead of the pilot's licence number for the purpose of the M.A.801(b)3 (certificate of release to service). Not holding a valid medical examination does not invalidate the pilot licence (or equivalent) required under M.A.803(a)1


CAA / CAP 0000 / April 2017

PRE-FLIGHT PREPARATION

Meteorology

The focus of the 'Code is on understanding weather forecasts and what factors to consider when deciding whether it is safe to fly or not.

Key info

You should have a good working knowledge of the conditions associated with common weather features, including:

- Warm and cold fronts;
- High and low pressure systems; and
- Thunderstorms.

AVAILABLE INFORMATION

For planning more than a few days in advance of the flight, normal weather forecasts are the main source of information – a daily forecast is normally available up to about a week in advance. Nearer the time, aviation weather forecasts should be consulted.

The Met Office is the main source of weather information in the UK - register for free at www.metoffice.gov.uk/aviation/ga. Here you will find:

- Surface pressure charts;
- UK charts F214 (Winds aloft) and F215 (Significant weather);
- Near Europe charts F414 (Winds aloft) and F415 (Significant weather);
- TAFs and METARs;
- Satellite and rainfall imagery;
- AIRMETs; and
- UK SIGMETs.

As well as the forecasts and reports there is a useful guide to weather information available for download, known as GetMet. It is produced in association with the CAA and can be found on the Met Office website.

Surface pressure charts

These become useful around four days in advance of the flight. They give indications of where fronts and their associated areas of high or low pressure are and where they are likely to move to. You should know what conditions are associated with the different directions from which air masses approach the UK. For example air from Europe tends to be dry but hazy, whereas air from the Atlantic tends to bring rain and low cloud.

Chart Key

H 1030 — Centre of high pressure area

L 980 — Centre of low pressure area

Warm front

Cold front

Stationary front

Occluded front

The Skyway Code / Pre-flight preparation 28

Information Skyway

Standby for The Skyway Code, everything you ever wanted to know relating to general aviation (well, nearly) but were afraid to ask...

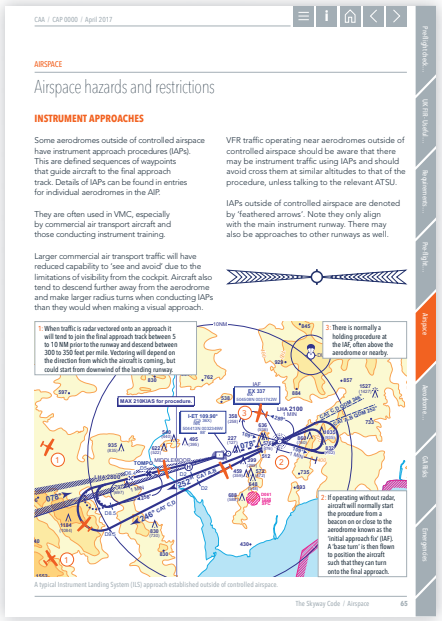
For anyone who's ever tried to get that piece of information they really need to find quite quickly just before they fly, it won't come as a huge surprise that the CAA has published millions of words and the topic you're hunting for might well be buried deeply somewhere in a dense, if rather worthy, document.

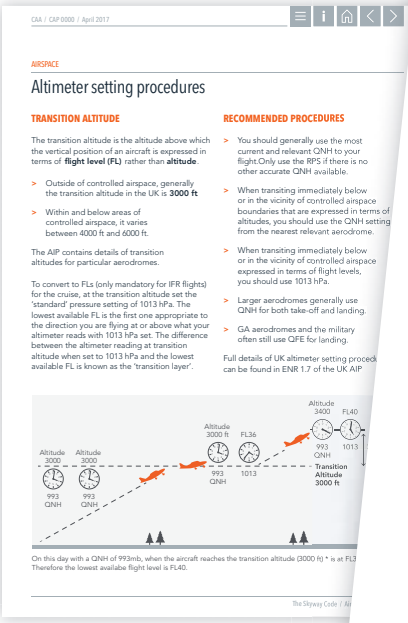
Something had to be done – and it has with the launch this summer of the Skyway Code. The name's not a bad pun, which is a good start because it means that someone swallowed a big reality pill before sitting down to try to sort things out.

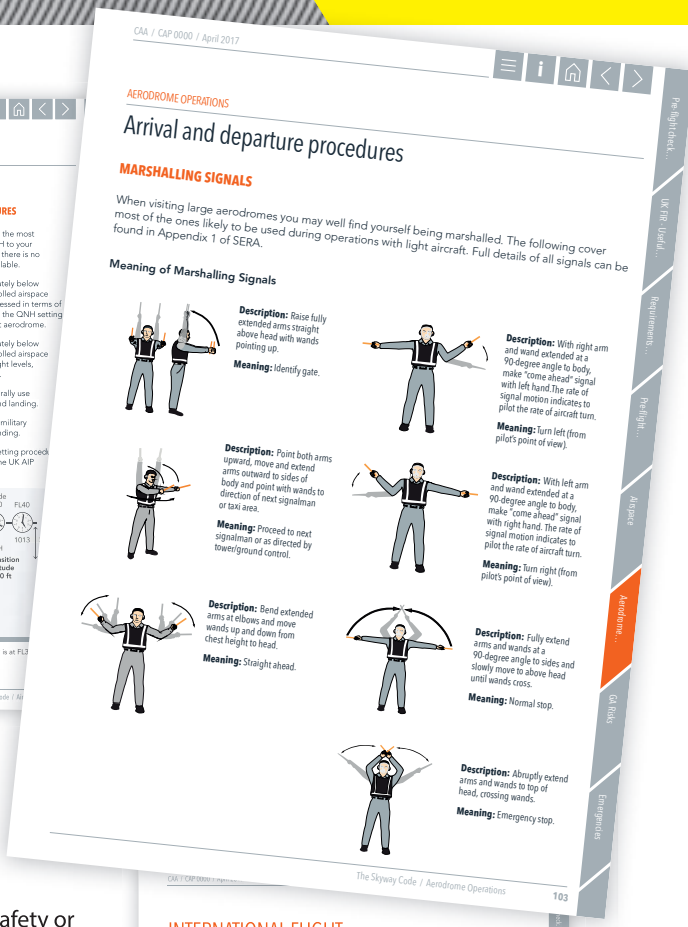
The result is a new document on the CAA's website primarily for private pilots and aimed at delivering quickly the information pilots need in a straightforward, readable format.

So what you get now is an opening section with a contents page listing all the topics and their page numbers (everything from regulations and requirements, to meteorology and ATC services, through to emergencies and international flight). But, crucially, you don't have to wade through the 150-odd pages to get to what you want; clickable tabs labelled **Pre-flight Checklist**, **UK FIR – Useful information**, **Requirements for the PIC**, **Preparing for Flight**, **Airspace**, **Aerodrome operations**, **GA Risks** and **Emergencies** down the right-hand side take you straight to the section concerned. You can also just tap in the page number from the contents listing.

But getting to the information you want quickly is only half the battle, it has to be easy to read and understand (something which, if we're honest, doesn't always







happen). Take the Aeronautical Information Publication (not exactly a topic for a relaxed dinner party with friends for example: It comes, as you'd expect, in the Pre-Flight Information section, a Key Info tab explains what it is, followed by a breakdown all about it and what you need to know in simple language and short paragraphs, plus there's a clickable link to the Aeronautical Information Service (AIS) website where it lives should you suffer from insomnia and want to read the whole thing.

That's then followed logically by a short explanation of Aeronautical Information Circulars (AICs) which in turn is followed by a section on Notams. This logical progression through related topics is invaluable because, as everyone knows, one thing leads to another and the last thing you want to have to do is click off to somewhere else to find the next piece of your particular jigsaw puzzle.

One of the difficulties with a project such as this is getting the right balance of tone when you have experienced pilots who will already know some, perhaps a lot, of the information and might feel it's 'beneath' them, and students for whom everything is new and explanation is everything.

In general it does the job well, and if parts of the information might be obvious to some, *'Ice has a very detrimental effect on aircraft performance, so must be avoided, unless the aircraft is approved for flight in icing conditions'*, the last part of the sentence '*the worst airframe icing will normally occur between 0ºC and –15ºC*' is, perhaps, a good reminder for many. Explaining the reasoning behind the whole idea of producing it, the CAA says: 'We wanted the Skyway Code to be something that GA pilots, new or experienced, would find useful and refer to regularly for information of a safety or regulatory nature. It was never going to be able to cover everything that a pilot might need to know, and for that very reason the scope was carefully considered. Focusing on aircraft operations and airspace seemed logical, but even within those spheres the temptation to include ever more detail had to be strongly resisted.

'It was realised that it would be critical for the content to be relevant and pitched correctly for the audience. Within the literally millions of words that the CAA has ever published lies a huge amount of valuable information, albeit sometimes buried in complex documents.

'Producing the Code was therefore more than anything an exercise in drawing together the right information and presenting it in a way that people would find accessible. There was an obvious danger that if the balance of content and detail was incorrect, it would miss the target and become lost in the wider stream of publications the CAA produces.

'As well as including the right information, we have tried to ensure that important and enduring messages of safety and airmanship shine through. We hope we have succeeded in this aim while recognising that there will inevitably be room for improvement in the future.'

So, on first inspection it has achieved its aim, and that last line is important, because it means the authors recognise that few things are 100 percent right first time, and they are prepared to adapt and modify to meet people's (pilots') needs.

In essence, the Skyway Code is a compendium of some useful and some vital information that pilots can go to to when they need to check something, whether it be about licensing, rules or flying. It's easy to navigate with external links for further reading and handy to have around – you either refer to it online or download the whole enchilada at *caa.co.uk/skywaycode*. ■

Getting a lift

Flying helicopters is challenging and enjoyable, but what happens when training ends?

New pilots invest a lot of time and money learning to fly, and given that helicopters are for most people probably a little more challenging than a fixed-wing aircraft, gaining a licence tends to cost a lot more.

The motor skills required to control the dynamically unstable platform of a helicopter involve more co-ordination, and while the PPL syllabus for both are a minimum of 45 hours, the helicopter syllabus contains 30 exercises compared to 19 for aeroplanes.

But what happens when training ends? While new licence holders can enjoy the freedom of the skies and take passengers with them, for the helicopter pilot this is, perhaps, the period that some skills learned during training begin to decline – and the reason for this is worth looking at to see how to tackle it.

A helicopter pilot with an EASA PPL (H) is required to maintain at least a Class Two medical and fly at least two hours every 12 months. Part of the two-hour requirement is an annual proficiency check with an examiner. Two hours a year certainly isn't sufficient to maintain a safe level of proficiency, so most pilots tend to fly more than that.

The problem is that flying helicopters isn't cheap and affordability can play a major part in the frequency of flying, so ➤

managing the cost of flying and maintaining a proficient standard can be difficult. A sensible minimum to attain a safe standard might be at least an hour per month.

The situation is compounded by the fact that self-fly hire from a flight school or training establishment restricts what you can do or practice during the flying time. For example, performing an autorotation (when the rotor-system is not powered by the engine) is not normally permitted. So it's not possible to practice all emergency drills as you might in a fixed-wing aircraft and a range of other rotary skills cannot be practised unless flying with an instructor.

This means there are a large number of licence holders who regularly only get to practice a simulated engine failure or an 'hydraulics out' approach once a year at the annual proficiency check. All of which poses the question, are we really competent to take passengers, family or friends with us when we fly?

It's worthwhile looking at accident statistics and figures taken from the Robinson website which indicate that over a five-year period in which there were close to 100 R22 accidents and a similar number for the R44, only one percent was attributable to engine failure. Also, for both types about 90 percent of accidents are attributable to pilot error.

The indications suggest that handling skills, decision-making and general airmanship are the predominant factors that lead to an accident. Engines only tend to fail when pilots run out of fuel or allow normally aspirated piston engines to ice-up. This isn't, though, an excuse to not practice engine failure drills, but perhaps it's worth considering continuation training after pilots gain their licence.

Helicopter accidents occur for a variety of reasons but some are specifically due to lack of training and proficiency. Pilots who have undergone training and gained their licence have rarely had the opportunity to fly with a fully loaded helicopter. Passengers aren't permitted during the training period and so flying with them and the associated increase in all-up mass coupled with the added distraction can present a range of new hazards.

What's more, there can be extra challenges, especially for new pilots, because once you've got your licence you can land in restricted areas such as that nice hotel or restaurant you've fancied visiting, or friends' with rather large lawns. The trouble is that landing at unfamiliar sites, especially when heavily laden associated with possible limited power conditions, can be extremely hazardous.

Of course a helicopter can be operated perfectly safely in these circumstances, but prior training is essential and it's unlikely to have been achieved during the PPL syllabus. It requires assistance from an instructor once you have gained your licence, and all pilots should be responsible enough to seek out additional help to polish their skills and expand on their training.

Here's another issue. As helicopters can fly at low speeds, when pilots encounter deteriorating weather there's a temptation to slow down and continue, but that's often the start of a dangerous sequence of events – there shouldn't be any stigma

It's tempting to press on into deteriorating weather

How often do you fly?

Handy things, fields

'So what's the solution to reducing the number of incidents of pilot error?'

attached to landing in a field and waiting for conditions to improve. Have a look at the AAIB reports of accidents to helicopters and you'll see the themes for all of these scenarios recurring.

Some pilots might also believe that because they have completed some instrument training they can manage to control the helicopter below minimum VMC conditions . Again, perhaps more emphasis should be made on training pilots to land when the weather deteriorates to avoid such circumstances. There's little excuse these days for not being aware of the weather likely to be encountered.

So what's the solution to reducing the number accidents and incidents of pilot error? Here's a suggestion for a three-pronged approach. Firstly, the responsibility for flying safely and maintaining a satisfactory level of competence depends on the licence holder, so perhaps taking regular training flights with an instructor to practice manoeuvres that pilots aren't permitted to perform when flying on their own or with passengers on board.

A useful guide might be to complete such a training flight at least every three months. The additional cost of flying with an instructor is relatively insignificant in the overall scheme of the flying budget.

Secondly, if they don't already, training organisations should encourage owners and self-fly hirers to conduct more instructor-led training to improve their skills. Finally, higher standards from candidates at the annual proficiency check. Pilots who cannot control the helicopter in autorotation, or who are not familiar with the emergency drills, are not safe to fly by themselves or have the privilege of taking other people flying with them.

There's no greater feeling than getting airborne in the helicopter on a sunny day and flying out for lunch at one of the many fantastic locations we have in this country, but it's essential pilots have the ability and handling skills to manage a situation if, or when, things don't go to plan. And the only real way to achieve that is to maintain a safe standard and be responsible enough to seek out the assistance of an instructor on a regular basis and reduce the number of instances of pilot-error accident statistics.

Captain Mike Buckland is the Base Manager for Heli Air at Gloucester; he is a senior CAA examiner and instructs at all levels, incuding teaching commercial pilots to become flight instructors.

A useful source of further information can be found at *https://essi.easa.europa.eu/ehest/?page_id=543* For more information on PPL(H)syllabus subjects, go to https:// https://www.easa.europa.eu/system/files/dfu/AMC%20and%20GM%20to%20Part-FCL.pdf page 115. ■

Landing at unfamiliar sites has its hazards

So, what's out to get you?

Some days it seems like everything… but a bit of Threat and Error Management can pay off

By Irv Lee

The idea of 'Threat and Error Management' (TEM) is still fairly new and hasn't yet come close to reaching into every corner of UK aviation, but it's not, as some believe, just a fancy name for 'airmanship'. True, it contains some airmanship concepts, but it's much more than that, especially where circuits are concerned.

It's a way of thinking in advance what could go wrong on any particular flight just in case it does; or, as ex-Scouts might say, 'Be Prepared'. If you add 'and Reduce the Risk' or even 'and Reduce the Surprise' to that motto, you are now in Threat and Error Management territory.

To prove that nothing's new, if you fly a low-wing aircraft with two fuel pumps, one mechanical and one electrical, you were probably taught to use both until 1000ft or even 1500ft above ground on departure. The thinking being that if the mechanical one fails immediately after take-off, when there's no time for restart checks, a back-up is already covering you. Whether they knew it or not, whoever taught you that introduced you to Threat and Error Management.

Breaking it down a bit, 'Threats' are usually dangers introduced by others' mistakes or incidents, while 'Errors' are, obviously, down to you, often just by being what you are (human). Sometimes that comes from misunderstandings, or even lack of skill due to poor training, but often in these days of exceptionally high flying costs, by lack of recent practice.

So, as each and every flight has to include some part of the circuit, whether as an exercise in itself or as part of departure or arrival, it provides rich pickings for Threat and Error Management analysis.

As far as Threats go it's where you are most likely to encounter others (there are growing concerns at the number of airprox incidents around airfields), and can you think of a busier time in the flight where potential overload and mistakes are more likely to bring in Errors?

Some of the reports on the Airprox website (*airproxboard.org.uk*) are fascinating reading, and one of the main worries is the visual circuit. To quote the UK Airprox Board's Director Steve Forward in his lead-in to the Airprox Summer 16 magazine:

"I chose visual circuit operations because I see far too many Airprox where people either lose situational awareness, don't follow procedures, or don't fully understand the overhead join and its likely confliction points; time spent on the ground thinking about the join and subsequent visual circuit is rarely wasted."

'Time spent on the ground, thinking about...' About what? About whatever could ➤

be a risk to your flight – Threat and Error Management.

So let's look briefly around the normal circuit. A small book could easily be written on the subject, so let's just examine either a threat or an error possible at each stage. The examples are real, I've seen these things developing or actually happening. You might be able to add many from your own experience, and that's exactly the point of the article – as the man said, spend time on the ground thinking what could possibly happen (what could possibly go wrong…) and what can you do to either prevent it, or deal with it if it does.

THE WIDER PICTURE

The picture on the chart, for example. The past 15 years has seen the demise of the ATZ at quite a number of reasonably busy airfields because it's no longer compulsory for training bases. Also, the rise of new age microlights has meant some previously quiet airstrips are getting busier and busier.

If your airfield or strip doesn't have an ATZ on the chart, other pilots might not recognise it as easily as they used to as a place of potential conflict. My first internet search for 'airprox circuit' produced numerous reports from 2016 (all worth reading), but the second in the list was exactly that, the removal of an ATZ at a Midlands airfield led to a chain of events that put a passing aircraft in conflict with circuit traffic.

In the past, all that could be said was the possibly glib, but fundamentally good, advice of 'lookout more', but with electronic conspicuity on the horizon (such as lightweight low-power ADSB transmitters and receivers), the quicker GA adopts and adapts fully to extra safety nets such as these, the lower the risk of airprox.

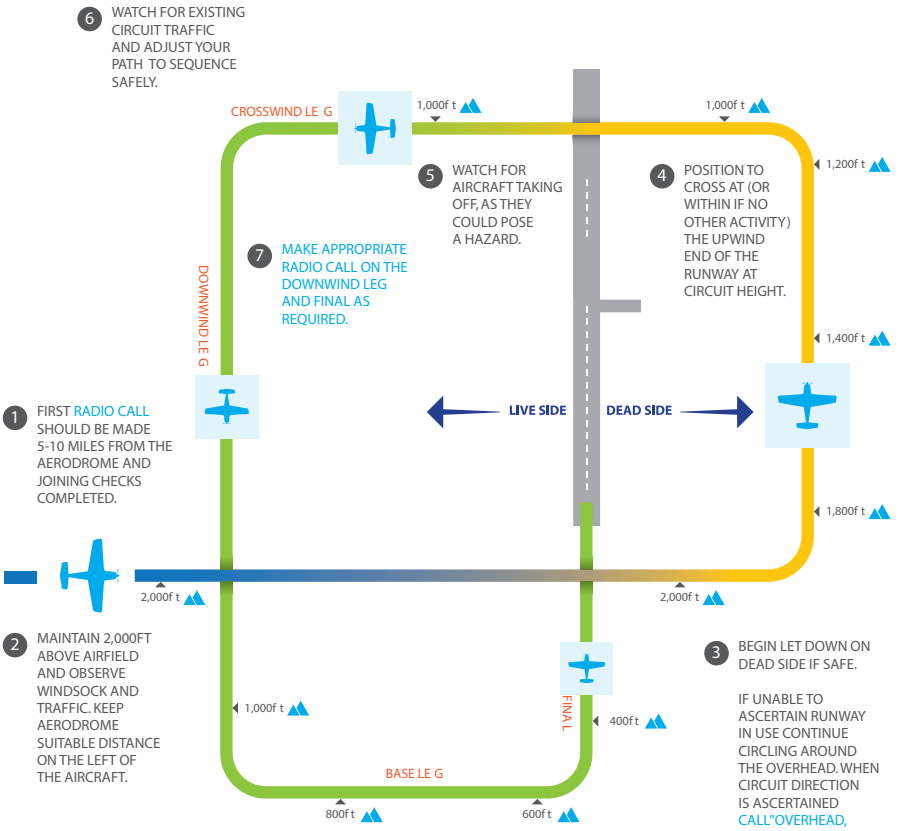
So, to zoom in from the wider view into each part of a flight around the circuit itself:

PREFLIGHT CHECKS

Checklists.... It's not exactly rare to find a pilot missing an item or even a whole subsection after an interruption of any kind, such as a radio message or a question from a passenger. Interrupted in mid check at any stage? Start the subsection again.

ENTERING THE RUNWAY

Controlled airfield or not, it's vital to keep eyes open for other aircraft on final that simply 'should not be there'. Warton has recently asked for publicity about an issue with aircraft landing at Warton, -while



The standard 'overhead' join - example of a left-hand circuit

believing it to be Blackpool. It shouldn't be a surprise to learn that 'final' calls are not on the Warton frequency.

This isn't happening only at Warton, there have been similar incident reports from other airfields; for example, one pilot was on approach at Gloucestershire Airport believing he was at an airfield that was further north…

TAKING-OFF

Many pilots go through a sequence of checks once the aircraft starts to move, and it's usually some form of 'rpm', 'engine instruments' and 'ASI' check. It sounds like good Threat and Error management to do this as it's the first time the engine has been at full power on this sortie. Unfortunately, after years of trouble-free take-offs, it can become just a mantra, chanted without actually looking and taking note.

I had to intervene with one take-off roll when, despite a declaration of 'RPM sufficient', the revs never reached a meagre 2000rpm when at least 2300 would be both normal and needed to get airborne and climb. The handling pilot was shocked and said he hadn't properly taken in any instrument reading, and had no intention of aborting the take-off until told to.

THE CLIMB-OUT

Recent analysis of post take-off accidents seems to indicate that a reduction in engine power in what should be a full power climb from the runway is more common than a sudden engine failure, yet we train and practice the latter.

Due to 'full failure' training, some might not recognise the threat of a reduction in power that will, if normal climb pitch attitude is maintained, result in a low level power-on stall, often resulting in a low level spin if out of balance. It's sometimes the (slower) airspeed for a standard climb attitude that gives the initial hint of a power drop, so ASI, attitude and power all need to be monitored during the climb.

CROSSWIND

It's worth noting that any aircraft joining from the deadside will normally be at circuit height on a separate crosswind leg parallel and inside an aircraft that has just taken off. The risk here is greater if the latter is a high-winged aircraft, because the turn into the downwind leg reduces the lookout

potential in the direction of the runway. Any potential conflict of a 'joining' aircraft on a parallel crosswind needs to be spotted before the turn. A similar situation occurs in low-winged aircraft turning from crosswind if another aircraft decides to join straight into the downwind.

DOWNWIND

The errors here can be caused by not getting speed control right early enough with a slower aircraft ahead. Early consideration of the relative speed of traffic in sight downwind and taking early action, perhaps with early flap and a safe but reduced speed downwind, can save much trouble later on. Taking a very slightly wider line downwind for slightly longer (without actually being accused of not following the normal pattern) will also produce good results against slower traffic ahead.

BASE LEG

A common error here is not to think ahead and settle on normal final approach speed when partial flap is lowered – the speed effect of lowering extra (drag) flap on final needs to be anticipated. Flying base leg at approach speed can lead to self-inflicted extra workload on final when drag flap is taken.

Check the handbooks for speeds on base and final, and if there is no recommendation for base leg and partial flap, use a few knots above the final approach speed and let the extra drag flap settle you into approach speed, rather than give you work to maintain it.

FINAL AND LANDING

Examination of incident reports shows a common factor for many light aircraft accidents, thankfully not usually producing fatalities or major injuries, is landing damage, often pilot-attributed to crosswinds or gusty winds.

It's worth knowing the limits for the aircraft (and the pilot if he or she is out of practice…), and how to calculate crosswind values. Watching from the right-hand seat also suggests incorrect approach speed (too fast) is common among some pilots, sometimes combined with not enough emphasis on holding the extended centreline to reduce late workload.

If the aircraft isn't under proper control (speed, position, track, descent rate, etc) at 250ft above ground, perhaps it's time to say goodbye to this approach and not risk being another entry in the landing incident lists.

Finally, the act of thinking in advance to mitigate risk and either deal with problems or avoid them completely isn't confined to the circuit, but that's where its adoption as an integrated part of any flying should show up first

There's a lot more to Threat and Error Management than space here allows, but it's in the circuit particularly where it really comes into its own. ■

PHOTOS BY KEITH WILSON/SFB PHOTOGRAPHIC - File images for illustrative purposes only

Warriors collide

1) PIPER PA-28-151 CHEROKEE WARRIOR
2) PIPER PA-28-161 CHEROKEE WARRIOR III
NEAR ELSTREE 30 SEPTEMBER, 2016

Two PA-28s were flying near Elstree in excellent visibility when they hit each other.

One pilot was a student on a navigation exercise from Leicester. Near the junction of the M1 and M25 at approximately 2000ft (on a pressure setting of 1010mb) he contacted Elstree and, after receiving instructions to join for Runway 26, looked down into the cockpit to set the QFE (999mb) on his altimeter. He then heard a 'substantial thump' to the left wing and saw the 'flash' of an aircraft passing by.

He realised he had been in a collision, but as the aircraft and engine still appeared to be working normally he flew on to Elstree and landed. The left landing gear, wheel and tyre were found to be damaged.

The pilot of the other aircraft, the Warrior III, was flying from Stapleford to White Waltham at 2200ft on a pressure setting of 1021mb. The pilot was flying towards a 'bright sun' which was low in the sky and reduced visibility.

As he looked at his map to check his position before calling Farnborough LARS, he saw a 'flash' overhead and felt an impact. Although the Warrior still flew properly, he declared a PAN and diverted to Elstree.

After landing, damage was found to the propeller blade and the upper wing which showed tyre marks from the student pilot's PA-28. The tracks of the aircraft were approximately 148ºM and 274ºM giving a closing angle of approximately 54 degrees which, given that the aircraft were flying straight and level at a constant speed and altitude, the angle would have remained constant in the lead-up to the collision.

It's likely that the poor into-sun visibility, the constant angle between the tracks of the aircraft, and the fact that both pilots were looking into their respective cockpits before the collision, contributed to the accident.

Night illusion

PIPER PA-32R-300 CHEROKEE LANCE
BAGBY (THIRSK) AIRFIELD
11 SEPTEMBER, 2016

On approach at night the pilot realised he was too low and applied power but touched down short of the threshold. The field to runway transition wasn't smooth and the Lance was significantly damaged.

The pilot had been distracted trying to contact another aircraft he thought was intending to taxi across the runway. He later found that the other pilot had stopped clear, but was temporarily out of radio contact. Runway 06 has a 2.6% upslope which can create the illusion of being higher on the approach than is the case and lead to a low approach.

The airfield information notes that, in light winds, pilots tend to use the upslope for landing and the downslope of the reciprocal, Runway 24, for take-off. The runway lacks threshold lighting which might have been helpful. However, the airfield is unlicensed and while CAA Publication CAP 793 - 'Safe Operating Practices at Unlicensed Aerodromes' recommends threshold lighting there is no requirement to do so.

Wake turbulence

QUIK GTR
HEADCORN AERODROME
11 NOVEMBER, 2016

The pilot of the Quik was about to turn onto final just as one of the twin-engine aircraft used by the airfield's skydiving centre descended ahead also onto final.

To allow some separation the pilot made a turn away from the airfield and then turned onto and called final for a nil-wind landing.

When the microlight was about 30ft above the runway it rolled "violently" to the right in the wake of the twin that had just landed and hit the ground nose-down.

There was severe structural damage to the Quick, including to the wings, fuselage and cockpit area. The pilot, who was wearing a helmet and lap harness, was helped from the wreckage by airfield staff and taken to hospital by ambulance with a fractured vertebra.

Wind issues

DHC-1 CHIPMUNK 22
BAGBY (THIRSK) AIRFIELD, YORKSHIRE
22 SEPTEMBER 2016

The pilot was very familiar with the airfield at Bagby and had landed a Chipmunk there six times in the previous four days. Because there was no air/ground radio service available he checked the surface wind at a nearby airfield; it was from 240º at 10kt.

On this occasion, he elected to land downwind on Runway 06 and take advantage of the 2.6% upslope. He knew the landing distance required was sufficient, given the grass surface was short and dry, but stated he would have used Runway 24 if he thought the wind was stronger than 10kt.

A normal approach was flown to a three-point landing and the pilot held the control stick fully back as the aircraft slowed. He maintained directional control using differential braking until, at a speed of 20-25kt, the aircraft swung left and would not respond to further right brake. The Chipmunk then veered off the runway and the pilot was unable to halt it before the right wing and tailplane struck a hangar.

The pilot concluded that the swing to the left may have been due to the wind gusting or shifting direction.

FOR FURTHER INFORMATION ON INCIDENT REPORTS, VISIT AAIB.GOV.UK

Sandy landing

PITTS S-1S SPECIAL
NEAR SOUTHERNESS **12 OCTOBER, 2016**

The aircraft and another departed from a local farm strip to carry out practice precautionary landings on a sandbar on the coast near Southerness in Dumfries on which the pilot had landed before.

The other aircraft landed first and then marked an appropriate area of hard sand, while the Pitts S-1S Special circled overhead.

The pilot of the Pitts flew a low-level circuit with a go-around and then approached to land. During the flare, he said that the "holding-off felt longer" than he was expecting. He attributed it to a headwind of approximately 10kt.

During this stage, though, the Pitts drifted to the left by 15 to 20 metres, which the pilot didn't notice. As the Pitts settled onto the sand, the there was a significant deceleration and it tipped onto its nose before he could react.

A check of the tyre tracks revealed that the aircraft had drifted enough to the left to miss the area of hard sand marked by the other aircraft. His touchdown was in softer sand where the tyres sank in, leading to the abrupt deceleration. The Pitts had damage to the tail section, landing gear, fuselage, engine and propeller.

Prop failure

SHADOW SERIES DD
BRIDGE OF ALLAN
24 OCTOBER, 2016

The Shadow is a 'pusher' with a rear engine and propeller. As the pilot raised the nose and lifted off from the private field there was a loud bang, then a second quieter impact sound and severe vibration.

The pilot continued to climb, turned back and landed crosswind in a soft and rutted part of the field using reduced power. The g meter registered 2.7g on landing, which the pilot reported as approximately 0.7g higher than previous uneventful rough field landings.

The landing damaged the tail boom and nosewheel, while one of the three blades of the wooden propeller showed tip damage and delamination of the leading edge insert.

The damage was likely caused by contact with an object, such as a stone, during, or soon after, rotation.

Brake issues

PIPER PA-44-180 SEMINOLE
WARTON
19 OCTOBER, 2016

The pilot lost directional control while landing and came off the runway onto the grass; as the aircraft taxied back onto the paved surface the right propeller hit the ground.

The incident was caused by the emergency landing gear lowering cable fouling one of the brake pedals. Although an examination confirmed that a fitting to locate the cable more positively, preventing mutual contact, had been installed under an Airworthiness Directive, the installation had been carried out incorrectly and the fitting was orientated such that the risk of hazardous contact between the cable and the brake pedal was increased, rather than eliminated.

Downed Albatross

ALBATROS DV.A
PIMPHURST FARM, KENT
15 SEPTEMBER, 2016

A replica Albatros DV.a, a German World War I fighter equipped with a Mercedes D.111 six-cylinder, liquid-cooled engine, was on loan to a UK organisation and returning from an event in France when the engine started running roughly and stopped just four miles short of its destination.

The pilot tried to land in a field but clipped a hedge on approach and the Albatross came to rest upside down; he was uninjured.

A landing incident three flights previously had resulted in damage requiring a replacement propeller, and the aircraft was returned to flight after consultating the manufacturer.

This replica was manufactured in 2015 and operated by an historic warbird company in New Zealand. Its engine was original and had been overhauled.

The cause of the engine failure wasn't immediately apparent and the operator said the aircraft would be sent back to New Zealand for examination.

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Smoking Socata

SOCATA TB10 TOBAGO
HENSTRIDGE
27 AUGUST, 2016

The pilot, flying three passengers, was leaving Henstridge but the take-off roll was a little longer than expected and the rate of climb was less than 400fpm, although the power checks had been normal.

Concerned, the pilot decided to return to the airfield. A burning smell was then noticed in the cockpit and white smoke was coming from the cowling. At around 500ft the engine started to lose power and the smoke increased.

The pilot made a Mayday call, switched the fuel off and landed successfully in a field. The occupants got out through the two doors and the pilot returned to the aircraft to fight the flames in the engine bay with a fire extinguisher.

The pilot believes the exhaust had become detached and the hot gases had started a fire in the engine bay, which also caused damage to the lower fuselage.

The pilot had an instructor rating and good recency in practice forced landings. This, and the fairly low height when the fire started, were probably factors that resulted in the successful forced landing.

Swing issues

FLITZER Z-1S
PRIORY FARM
29 OCTOBER, 2016

After a normal touchdown the pilot sensed a gentle swing to the right so applied "a blast of power and left rudder". The swing continued so the pilot applied full power to initiate a go-around, but the left main wheel clipped the top of a ditch and inverted. The pilot was uninjured and left the aircraft unaided. The fuselage had structural damage, the landing gear was bent and the upper right wing spar was broken.

Losing control after landing

PIPER PA-32R-300 LANCE
STAPLEFORD
28 OCTOBER, 2016

The pilot made a normal approach to Runway 21L at Stapleford, a predominantly grass runway 1,077m long with a 600m long, but less than half-width, asphalt insert at the north-east end.

The wind was from 260° at 9kt and the runway was dry. The pilot said that touchdown on the asphalt surface was normal, but during the landing roll the Lance drifted slowly to the left side of the asphalt. He didn't try to stop the drift, thinking that, as the aircraft was slowing normally, he would leave the paved surface at a low speed. But as the aircraft crossed onto the grass surface the nose leg fractured and the propeller struck the ground. The aircraft had damage to nose landing gear, propeller and possible shock-loading to the engine.

Yaw troubles

CYCLONE AX2000
LONGSIDE AIRFIELD
9 OCTOBER, 2016

The student was on a first solo in a calm wind and good visibility. The circuit and approach were flown well, but during the landing the aircraft yawed left just before touchdown and the pilot didn't correct quickly enough.

The main wheels contacted the surface as the Cyclone headed towards the runway's edge, so he started a go-around but the wheels caught the longer grass next to the runway and it tipped over, coming to rest inverted.

The pilot was unhurt but the aircraft was badly damaged.

FOR FURTHER INFORMATION ON INCIDENT REPORTS, VISIT AAIB.GOV.UK

Query as gyro comes to grief

ROTORSPORT UK MTO SPORT GYROPLANE
NORTHREPPS AERODROME
28 SEPTEMBER, 2016

Following standard operating procedure, the pilot pre-rotated the rotor to 200rpm, trimmed fully forward and, with the control stick fully aft, opened the throttle to reach 5000rpm.

After releasing the brakes everything appeared normal, although the pilot said he experienced an increasing realisation that 'something was not right'. The next thing he remembered was being trapped inside the cockpit with the aircraft on its side.

He released his harness and turned off the ignition switch with his right foot, but couldn't move ay further until an ambulance crew freed him.

The pilot couldn't explain had happened, other than to suggest a possible intermittent fault in the pitch trim system.

The Calidus and Cavalon gyrocopters, successor models to the MTO Sport, have modified trim systems that don't apply pneumatic pressure to the trim actuator following pre-rotator release.

Rotorsport said it thought that any pneumatic trim system fault was unlikely to have generated sufficient control forces to cause a problem. However it emphasised the importance of maintaining accurate pitch control during take-off; aft stick is applied during the roll to maintain the airflow through the rotor disc so that it continues to be driven.

Airship angst

HAV AIRLANDER 10
CARDINGTON
24 AUGUST, 2016

At the end of a test flight the Airlander couldn't be secured to its mooring mast because of a fault in the winching apparatus, so it departed again while the issue was investigated. But as it left the mooring line, which had been secured temporarily, fell free until it hung full length below.

This meant the second approach had to be higher than ideal and the Airlander arrived high over the landing site. The test pilot attempted to manoeuvre to bring the mooring line within reach of the ground crew, but while he was doing so it unexpectedly adopted an exaggerated nose down attitude and began to descend, striking the ground and damaging the cabin flight deck area.

The cost of distraction

CESSNA F177RG CARDINAL RG
DENHAM
14 DECEMBER, 2016

While flying a flapless circuit for an SEP class rating revalidation, the pilot raised the landing gear on the crosswind leg, just prior to turning downwind. This wasn't standard procedure in the type when flying circuits and the commander said she intended to tell the pilot to lower it once the gear had finished travelling.

A protracted radio communication from two other aircraft ahead in the circuit distracted the pilot from lowering the landing gear, and the commander from noticing that it hadn't been lowered.

An aircraft joining the circuit overhead caused further distraction and the landing gear wasn't lowered as part of the downwind checks.

The commander said that the low sun angle and attention to trees on the flapless approach needed greater attention than normal and the landing was completed without selecting the landing gear down. After the aircraft was recovered, a maintenance inspection revealed that the landing gear warning horn wasn't working.

Stall no warning

MAINAIR BLADE
HAWKSVIEW AIRFIELD
18 SEPTEMBER, 2016

The pilot was approaching Runway 08 with the wind from 090° at 7-8kt. After passing over buildings immediately to the west of the runway, he reduced power to land. At the same time, he noticed the windsock was showing the wind backing to blow across the runway from the north. The pilot didn't remember what happened next except that the Blade crashed onto the runway. Later, he assessed that it had stalled on finals.

FOR FURTHER INFORMATION ON INCIDENT REPORTS, VISIT *AAIB.GOV.UK*

DOUBLE ENGINE FAILURE
Colomban MC-15 Cri-Cri
Popham, 13 September, 2016

The pilot was on a short flight to check carburettor mixture adjustments. At 400-500ft on final he closed one throttle followed by the second, at which point the first engine stopped. He started to advance the throttle of the live engine but that also stopped. The nose pitched down and he established a glide approach. At about two feet the right wing dropped and the Cri-Cri landed heavily. The pilot considered that the engines had stopped due to the adjustment of the mixture controls on both carburettors giving excessively lean conditions at low rpm in flight.

GEAR COLLAPSE
Pioneer 300
Wellesbourne, 6 September, 2016

The pilot reported a "jolt" during his take-off roll and was subsequently unable to obtain a safe landing gear configuration. Instead of continuing to Bidford Airfield he diverted to Wellesbourne because it had a grass runway and emergency services. On touchdown the gear collapsed. Examination of the right main landing gear identified a structural failure and there was evidence that a crack had been progressing for some time. The Light Aircraft Association says it is now reviewing the landing gear maintenance procedures and inspection requirements for the Pioneer 300.

WIND MIX-UP
P & M Aviation QuikR
Hawksview Airfield, 1 September, 2016

After arriving overhead the pilot checked the windsock but misread the wind direction. As a result he planned to land on Runway 08, instead of 26. He conducted a go-around off the first approach and, on the second attempt, landed a long way into the runway, bounced and then veered to the right before colliding with a fence.

EMERGENCY OVER-RUN
Beech B55 Baron
Rectory Farm, 29 August, 2016

During a flight from Belgium to Northern Ireland the pilot reported a rudder restriction and made a precautionary landing at Rectory Farm Airfield. The Baron was unable to stop within the runway length available, substantially damaging the left wingtip, right wing and fuselage.

SLOPE TROUBLES
Robinson R66
Private site, Stowe, 15 August, 2016

The pilot, who had landed at the private site previously, touched down on a relatively flat area above a slope, with the rear of the skids over the edge of the slope. As the helicopter settled it pitched nose-up. The pilot simultaneously raised the collective and pushed forward on the cyclic which caused it to lift and roll left. The pilot then lowered the collective to avoid colliding with trees and landed firmly. The front of the skids collapsed and there was minor distortion to several fuselage panels. The pilot said he had misjudged the position of the slope and may have over-reacted to the initial pitch-up.

BRAKING MIX UP?
Piper PA-28-180 Cherokee
Cumbernauld, 19 October 2016

During the landing roll the pilot retracted the flaps and pressed the toe-brakes to stop, but the Cherokee "swerved" to the left off the paved surface. He applied power to get airborne and reposition towards the runway, but the nose landing gear collapsed. The pilot said he might have applied asymmetric braking when attempting to stop.

FIELD FLIP-OVER
Piper PA-22-150 Tri-Pacer
Wyke Oliver Farm, 5 August, 2016

While in the cruise at 1,700ft the pilot selected carburettor heat 'on' and the engine lost power (decreasing from 2,300 to 1,500rpm). Selecting the carburettor heat to 'off' didn't restore power so he reselected 'on' and moved the throttle backwards and forwards. He also tried a different fuel tank but nothing restored power. He transmitted a distress call to Yeovilton Radar and concentrated on a field landing. The aircraft touched down at 60mph but bounced back into the air when it ran over a bump. It touched down again and the pilot began to brake but was unable to stop before the Tri-Pacer struck an obstacle and turned onto its back. It was not determined why the engine lost power.

GUST TROUBLES
Skyranger 912(2)
Hackford, 26 August, 2016

The pilot said a gust from the right pushed him towards a tree on the left side of the runway and the Skyranger clipped the tree with its left wing. Despite applying full power and applying right roll and rudder it continued to bank left. As it was then approaching power lines, the pilot reduced power and landed in a field of maize.

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