A BRANCH OF THE LIGHT AIRCRAFT ASSOCIATION PROMOTING RECREATIONAL AVIATION IN THE SOUTHWEST
www.devonstrut.co.uk

The Devon Strut is twinned with RAA Toronto Region, EAA Chapter 14 San Diego and Chapter 20 SAAA

DEVON STRUT NEWS – November 2013

Chairman's Chat — by David Millin

The LAA held a taster event at Goodwood on 5th October to which around one hundred aircraft attended. Graced with fine weather, I enjoyed the flight there and back via a southerly route, crossing the Isle of White via Swanage and coasting back into the mainland at East Wittering. Such was the popularity of the event that many people were in the hold for some time before they could land. However, I am sure a streamlined method of handling large numbers of aircraft will be in place for next year's big LAA event.

On the return journey from Goodwood, whilst over Ryde, I was quite pleased with myself for spotting an aircraft in the distance, off and to the rear of my port wing tip. It was hardly more than a spec. After watching it for a couple of seconds and noting it was not moving in relation to the window, I showed the now clearly distinct shape the underside of Charlie Golf but he held his course. A smart dive and turn out of the way allowed my fellow aviator comfortable passage behind and above me. I rather think he never saw me. Maybe he was 'in' the cockpit rather than 'out.' A good reminder to keep a sharp look-out at all times.

Our winter season is now in session and for our first monthly winter club evening at the Ley Arms, Mark Preston gave us a wonderful talk on his flight to the Northern Cape. This journey was the second time his Hornet Moth had made the trip. For those of you who missed Mark's presentation, he described an expedition through challenging conditions which was meticulously planned. Mark mentioned that his partner Dick Felix, was predominantly responsible for the greater part of deciding upon the logistics and route which took them to the most northerly place in Europe and a very, very long way from home. It was a huge achievement which makes most of our flying appear quite tame by comparison! I think that Mark's philosophy is "Don't just dream – do it." Next month's talk is by Paul Gardner and Peter Mounce on their microlight touring holiday in the south of France. See you at the Ley Arms on **Thursday 14th November.**

As we prepare to send out this newsletter we sadly made the decision to postpone the scramble to Newquay and the Classic Air Force Museum from the weekend of 26th/27th October and to re-schedule it for 2nd or 3rd November. Fingers crossed that the weather is obliging and that you didn't suffer any damage from the storm that was forecasted for 27th/28th!

'The Flying Show' takes place at the NEC on 30th November and 1st December. The UK's largest indoor aviation event is an excellent opportunity to meet up with friends, see exhibits at the lighter end of aviation and have a good day out! LAA members can get pre-book tickets online using the promotional code on the back cover of October's Light Aviation magazine. http://www.theflyingshow.co.uk

Finally, an announcement that the Strut is to hold a Christmas meal at the Ley Arms at 8.00pm on **Wednesday 4th December.** Details are included later in this newsletter and we look forward to seeing as many members and their guests at this celebration.

Until then, Blue Skies, *David*.

Member's Profile – Jim Gale

Current Day Job – Special Skills
Retired electro/mechanical/structural engineer.

Past Career
I served a 5 year general engineering apprenticeship and finished up as a design engineer. I worked in the controls industry for 5 years before joining the Battle of Britain film crew in 1968 as an RC aircraft modeller. I stayed in the film industry for a couple of years, working with a special effects crew on various films including the Thunderbirds series, Hammer House of Horrors and a space film. When the family came along, I returned to control applications in the air-conditioning industry. Almost a year later the factory burnt down and I was made redundant so decided to start my own manufacturing business in integrated ceilings – lighting, air-conditioning and ceiling systems. I set up a BS test laboratory and held various patented designs. After 20 years, I sold up and moved to Devon to run a holiday business and follow my hobby of flying and restoring light aircraft.

Why Aviation?
Photos spanning 60 years say it all. Aeromodeller from a very early age (*see right*).

First Flight – in What, Where and When?
Tiger Moth, Denham, 1954. At the age of 14, I worked at Denham airfield, cleaning aircraft with short flights as payment.

How long in the Devon Strut? Since 1988…

Number of Aircraft Types and Hours Flown: About 22 types and just coming up to 2000hrs.

Favourite and Worst Types Flown
My favourite is the Aeronca Champ, closely followed by Jodel DR1050. Don't think I've ever had a "worst" type but I once flew a very unstable Jabiru 400, though I think it just hadn't been rigged properly.

Best Aviation Moment and Flight
Lots! My first solo, of course, and later island hopping in the Bahamas. Then flying into Exeter in Concord. This was a special photographic flight for Cunard publicity and the pilot wracked Concord tightly around the Queen Elizabeth about 6 times, low over the ship anchored in Torbay as the promo boys took photos from the shore. It was quite a spirited event doing rate 3 turns and as the captain said, "We don't get to do this very often!" Another great moment was flying with Dicky Dougan at Exeter on an introduction to aerobatics. The man was brilliant!

Any Aviation Heroes?
Any of the pre and post war aviatrixes and the WW2 ATA girls. I have great admiration for their talents and bravery.

Favourite Aviation Author / Recommended Book(s)?
So many but I do remember enjoying "Spitfire, A Test Pilot's Story" by Jeffrey Quill.

Any "I learnt about flying from that" Moments?
I have never stopped learning. During training (learnt to fly at Booker in 1976) during a solo circuit bashing episode, put the flaps (barn doors) on a C150 to full down instead of 10deg down and wondered why I wasn't going anywhere. It seemed a long two minutes before I got to 200 feet and could get the flaps up in stages.

And biggest lesson of all came when flying an aircraft without a stall warner, during very slow, low flight it suddenly dropped out of the sky with no warning. Luckily I walked away from that, but it made me realize that all the practice stalls at 3000 feet do little to prepare you for a stall at 100 feet. Since then, I've always made steep approaches and do not fly 'low and slow, with nowhere to go'!

Flying the B747 simulator in 2012

"Wish List" – aircraft to fly or own; places to visit?
Would love to fly a Spitfire. Have been lucky to fly in most parts of the world but would like to do some alpine flying on wheels or skis.

Current Aeroplane(s)
Aeronca Champ G-AJON (*right*) under rebuild, which hasn't got very far because for most of the last 7 years I've been helping youngsters on the Youth Build-a-Plane Scheme building and flying Xair Hawk G-SPDY. Currently half way through the BaP3 project, a Zenair CH701.

Jim with Speedy at the Flying Show

BaP3 Zenair 701 fuselage sides

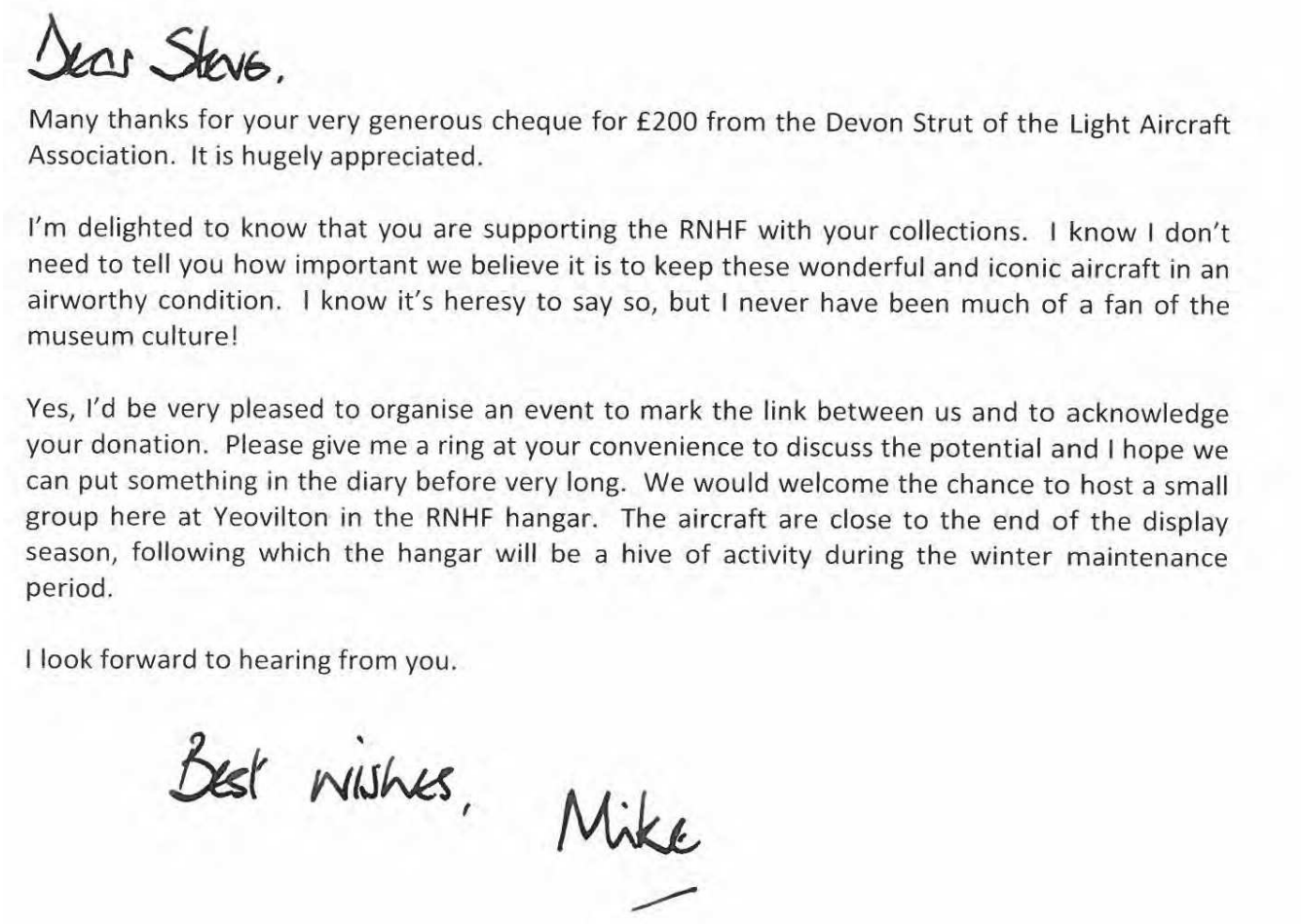
Any Advice for Other Strut members?
Enjoy your flying and aviation interests for as long as you can. Give a flight experience to non flyers whenever possible and if you have a spare seat anytime on a Strut event, take another Strut member who doesn't fly, flying. Those of us that have learnt to fly and own an aircraft are all very privileged.

Roche Airfield Temporarily Closed

Mike Hanley has been in touch to say that Roche airfield is closed to all aircraft for the time being.
"We were hoping to stay open till the wind turbines were being bolted down and we had already changed the runway direction to make it safer by not flying over the new A30 Trunk Road Service Area, but on 30th September an archaeology team moved in to "dig". They will be there for 6 to 8 weeks and then Bob Hyatt says that he will be in to put up the turbines. We plan to relocate to the east side of the farm in the new year if we can take a hedge out. So Roche is closed till further notice and we will keep you informed. Regards, *Mike Hanley*. "

Charities Acknowledge Donations from the Devon Strut

Royal Navy Heritage Flight



Dear Steve,

Many thanks for your very generous cheque for £200 from the Devon Strut of the Light Aircraft Association. It is hugely appreciated.

I'm delighted to know that you are supporting the RNHF with your collections. I know I don't need to tell you how important we believe it is to keep these wonderful and iconic aircraft in an airworthy condition. I know it's heresy to say so, but I never have been much of a fan of the museum culture!

Yes, I'd be very pleased to organise an event to mark the link between us and to acknowledge your donation. Please give me a ring at your convenience to discuss the potential and I hope we can put something in the diary before very long. We would welcome the chance to host a small group here at Yeovilton in the RNHF hangar. The aircraft are close to the end of the display season, following which the hangar will be a hive of activity during the winter maintenance period.

I look forward to hearing from you.

Best wishes, Mike

Mike Nixon, OBE, FRAeS, Chief Executive, The Fly Navy Heritage Trust, RNAS Yeovilton

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City Holidays for Inner City Kids (CHICKS)

Dear Pete

Subject: Donation to children's charity CHICKS

I hope this finds you in the very best of health. I am writing to thank you for the £200.00 donation from the Devon Strut Club. All money donated goes towards funding the FREE respite breaks we provide for underprivileged children. Although the respite breaks are free for the children, each child place in 2013 will cost CHICKS an average of £735.

CHICKS aim is to provide disadvantaged children from across the UK, including hundreds from many areas of Devon & Cornwall, with a free respite break. We have two retreats in Tywardreath and Brentor and our breaks run from March to December. The children CHICKS care for come from a variety of backgrounds. Many have been abused, live in poverty, or have been neglected. Others live in care or are themselves young carers, often bearing the extraordinary responsibility of caring for disabled or terminally ill relatives.

2012 was a big year for CHICKS; we celebrated our 20th anniversary and have now given over 10,000 disadvantaged children a vital break away. CHICKS began in 1992 and helped 25 children in its first year. We are delighted that, 20 years on, we have grown to support 50 times as many children; in 2013 we hope to be able to provide another 1,200 disadvantaged children with free respite breaks. We will require 600 volunteers for the weekly camps this year.

On behalf of all the staff, volunteers and children I would like to thank you for your continued support which is vital in helping young children see a brighter future. Thank you also of course for the times you have given trips to so many children from CHICKS.

Please don't hesitate to contact me if you would like to visit the retreat sometime.

Best wishes

MR.

Mick Ryan
Community Fundraiser
CHICKS Coastal Retreat

t: 01726 817913
e: mick@chicks.org.uk

Newquay and West Wales Airports to Host Unmanned Aircraft Systems

A launch event held for the National Aeronautical Centre (NAC) at the Royal Society, no less, saw the creation of the world's first private facility for Unmanned Aircraft Systems (UAS). Newquay and West Wales (Aberporth) airports will offer through NAC test facilities in civilian airspace for UAS that can fly beyond line of sight of the controller. This is an early bid for a share in a market estimated to be worth four trillion US dollars by 2030. Watch the NOTAMs for Cornwall and West Wales for UAS activity from now on.

Welcome to New Members

Sandy Macfarlane, Camberley, Surrey. RV10 G-CGJP at Frensham, ATPL Aeroplanes & Helicopters, Training Captain on B787.

Computing the Load

http://www.avweb.com/eletter/archives/101/2654-full.html?ET=avweb:e2654:511873a:&st=email

Controllability cannot exist without some measure of stability. Stability, in turn, is affected by several factors. One variable even changes over the course of a single flight - the location of the centre of gravity (CG).

When was the last time you computed aircraft weight and balance? What practical effect does knowing the CG location have on your flight planning? What happens to your airplane's stability as you burn off fuel in flight?

By computing the CG location, you can predict how the airplane will handle. In some airplanes, handling can vary greatly with variations in CG location. If the CG is outside design limits, the airplane may not be controllable at all. How does CG location affect control, even within the certified envelope?

Forward CG

The further forward the CG, the greater its tendency to straighten the airplane out if disturbed by turbulence or control movement. Moving the CG forward *increases* stability. This is normally a good thing (especially for instrument flight), but even within the CG envelope, a forward CG has some adverse effects on performance, including:

- The need of additional elevator force -- and therefore more speed -- to raise the nose for takeoff. This means it will take a longer runway to get up to control-force speed.
- For a given airspeed, a greater control deflection to hold a pitch attitude. Greater control deflection increases aerodynamic drag, reducing performance.
- In most flight regimes, increased downward force on the tail to resist the nose's tendency to drop. This results in increased drag and, indirectly, flight at a higher angle of attack for a given speed, both of which reduce performance even further.
- Reduced cruise speed for a given power setting and airplane weight, for the same reasons.
- Increased power (and fuel burn) necessary to achieve a given cruise speed.
- The need for additional up-elevator to flare for landing.

Note that all these effects happen even when the CG is within certified limits. If the airplane is loaded outside the limits on the forward edge of the allowable loading envelope, the airplane may be *so* stable that even full control deflection isn't enough to overcome the nose-down tendency. The airplane, in effect, becomes too stable to fly. A forward-CG loading that is controllable in flight, with ample airflow over the elevator, may become uncontrollably nose-heavy as the airplane is slowed and control effectiveness is lost. The nose-heavy airplane may be more likely to "mush" into the ground short of the runway, or land hard on the nosewheel when control effectiveness is lost in the flare.

What's typically nose-heavy? Some airplane designs are naturally nose-heavy. Turbocharged aircraft are particularly nose-heavy (from the weight of the extra turbo equipment ahead of the firewall), especially if there are no occupants or baggage in the airplane's aft cabin. Some fairly short airframes also end up nose-heavy without rear-seat passengers or baggage.

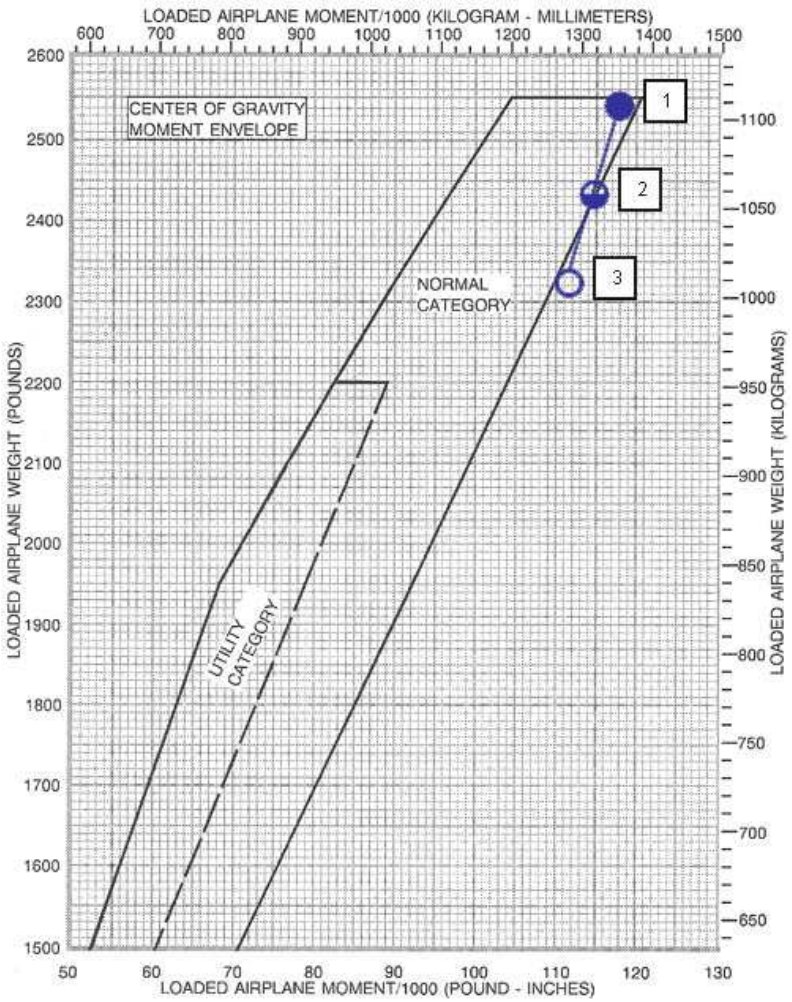
Aft CG

As CG goes aft, there is less distance between the CG and the centre of lift, and the airplane becomes *less* stable. In the extreme, modern fighter jets are designed to be completely unstable for maximum manoeuvrability, depending on computer-driven controls to "create" stability for aircraft control. Although reduced stability increases manoeuvrability, a rearward CG also induces these effects:

- A tendency to nose up prematurely on takeoff, and to pitch up excessively in response to the "normal" pilot inputs for takeoff. This makes the airplane more likely to stall, and increases drag to reduce initial climb performance.

- If disturbed by turbulence, the airplane will not return to stable flight, but may "hunt in pitch" and require more active control input by the pilot. The aft-CG airplane is a much higher-workload aircraft to fly precisely -- an unstable balancing act.

- When slowed for landing, it may require nose-down elevator to avoid a pitch-up tendency. If "normal" control inputs are applied, the airplane will be more likely to increase angle of attack and land short, or stall.



- The tail-heavy airplane will, however, trim out at a lower angle of attack in cruise, and so for a given power setting, it'll fly a little faster than the same airplane loaded at a further-forward CG.

If CG is aft of the airplane's certified loading envelope, the airplane may be so unstable it cannot be safely flown. The effect would be more pronounced at slower speeds, such as landing, when reduced air flow makes the elevator less effective.

What's typically tail-heavy? Airplanes with large aft baggage areas and long-body airplanes with seats near the back of the cabin are most commonly loaded near (or beyond) their aft CG limit.

Fuel Burn and CG

We all learned to compute CG location as part of our initial pilot training. But how many of us were taught to compute weight and balance not only for the takeoff condition, but for the anticipated landing condition as well? Many airplanes may be loaded within limits for takeoff, only to go out of the CG envelope after some amount of fuel is burned out of the tanks. I surprised renters of a Cessna 172 I flew early in my instructor career by showing them the airplane was safely within limits at nearly fuel with two people in the back seats, but that after burning about half of the fuel in flight the CG was drifting dangerously aft of the aft limit.

Computed CG location for a Cessna 172S with two standard occupants up front, a pair of 150-pound passengers in the rear seats, and baggage for a weekend trip, at (1) full fuel, (2) half tanks and (3) a zero-fuel condition. Note the CG gets closer to the aft limit as fuel is burned, going out of limits well within the range of the aircraft.

Since most airplanes carry their fuel in the forward part of the wing it's most common for CG to translate aft with fuel burn. Individual airplane design and optional auxiliary fuel tanks can complicate this rule.

Here's an exercise: Using weight-and-balance data for an airplane you regularly fly, with a given passenger and baggage load, compute CG location at full fuel, half fuel and zero fuel. See where the CG goes with fuel burn, and whether it'll go beyond the aft limit as loaded while there's still fuel in the tanks. If so, you've now established a shorter aircraft range (including reserves) before you need to land for fuel to maintain controllability.

Knowing Your Limits
If you're inside but near the forward CG limit, the airplane will take more runway to take off and a firm hand to get into a climb attitude. But the airplane will be more stable in turbulence, giving your passengers (and you) a smoother ride. Take advantage of a forward CG and plan fuel stops and your load to be near the forward limit when you fly in rough air or near mountains. If the air is smooth, you might plan for a rearward-but-within-limits CG, for a faster cruise speed. Either way, account for the CG effect of fuel burn and ensure you'll still be safely within the envelope at the completion of your trip, including flight to an alternate airport if needed.

Some pilots like "stable" airplanes, especially for instrument flight. Others like "manoeuvrable" aircraft. The "stable" types consider more manoeuvrable airplanes to be "squirrelly," while the "manoeuvrable" crowd says stable airplanes "fly like a truck." Whatever your preference, the way the airplane handles is in large part a function of its CG.

Visit to Royal Navy Historic Flight, Yeovilton, Friday 15th November, 10.15 am

An opportunity to visit to the RNHF at Yeovilton has been arranged by Steve Robson for a maximum of 12 Strut members on a first come, first served basis. The trip will include a visit the Historic Flight hangar and can be followed by lunch at the Swordfish Restaurant and a look around the Yeovilton Museum.

If you would like to be included in this visit, please reply to Mike Mold 01404-891587 or mike.mold@tiscali.co.uk asap.

Adverts

Wind Sock For Sale 4ft x 15" x 8" Piggott best quality orange Wind Sock, unused and c/w swivel lanyard. £25. Jim Gale 07887906789

PA28 Share at Newquay Piper PA28-180, 1/5 share for sale, based at Newquay. Good availability and ideal for touring. Contact Rachel Ellis for details on 07855 219544 or rachelellis@tiscali.co.uk

Evans VP1 G-BDTL Recently restored, new PtF, based at Dunkeswell. Peter Gilmour petergilmour@hotmail.co.uk 01395-568502, 07814-931059.

Piel Emeraude CP301 Based at Eggesford. Recent top end overhaul, new stainless steel manifolds and exhaust, mode C transponder, ICOM IC A200 radio. Great fun and responsive with superb all round vision. £12,000 For more information please contact Mel Gale mel.gale@uk.fujitsu.com

Taylor Monoplane £6,500 Taylor Mono with Acro 1835cc engine/elec start/Diehl alternator low engine hours since upgrade. Single seat fun & perfect for cheap hours building. Hangared South Devon strip. AF 716 hrs. Eng 136hrs since conversion. Permit to mid Sept 2013. MTOM increased to 735lbs. This a/c was built at RAF Kemble and was known as the 'red sparrow' at the time the Red Arrows were based there. Contact Reg McComish 07843-477302.

If You're Serious About Your Flying …

You'll want to subscribe to **GASCo's Flight Safety Magazine**. Keep up with the latest developments towards better safety. Read about recent AirProxes, GA Occurrences and AAIB accident reports. Follow the well informed commentary in our articles and letters. Help us with our work at GASCo. Quarterly. Subscription only £16 p.a. including UK postage and a digital version, plus:

Flight Safety Extra: Free email copy of this useful new monthly round up of the latest safety information is available to anyone. Go to www.gasco.org.uk or email info@gasco.org.uk or tel. 01634-200203. Editor: Nigel Everett.

Flyer Magazine

The November issue of FLYER is now on sale and features free landings for Bagby, Bourn, Castle Kennedy, Fishburn, Retford Gamston and Sutton Bank. The magazine also comes complete with a free A5 Squawk card, updated to include the new code for Farnborough.
Best regard, *Ian Waller* – Editor

LAA Free Landings for November
Andrewsfield, Full Sutton, Kemble and Sleap

Devon Strut Christmas Meal

This year the Strut will be having a Christmas evening meal for members and their guests at the Ley Arms on **Wednesday 4th December**, 7.30pm for 8.00pm. The prices are £16 for two courses and £20 for three courses, payable by members to the pub on the night. The menu options are as follows:

Starters
Butternut Squash and Blue cheese Soup
Smoked Salmon and Beetroot Salad with Pomegranates
Duck Rillettes with Sour Dough Toast and a Tomato and Cranberry Chutney
Roasted Field Mushroom topped with Goats Cheese and Chestnuts with a Ginger Cream sauce

Main Courses
Traditional Roast Turkey with all the trimmings
Braised Steak in Otter Ale with a Suet Pastry crust
Winter Vegetable Nut Roast with a spiced tomato sauce
Pan Roasted Fillet of Salmon with a White Wine, Mushroom and Coriander Cream sauce

"…all served with Roast Potatoes and Seasonal Vegetables."

Desserts
Christmas Pudding with Brandy Butter
Cider Poached Pear with Crème Anglaise and Walnut Biscuit
Chocolate Brownie with Honeycombe Ice Cream

Please phone Mike Mold on 01404-891587 or email mike.mold@tiscali.co.uk with your menu choices by 14th November as the Ley Arms needs confirmation of our anticipated numbers and choices.

Winter Evening Meetings

Second Thursday of the month, October - April, at The Ley Arms, Kenn, Exeter starting at 7.30 pm
(For evening meals, please make table bookings on 01392 832341).

November 14th	**Paul Gardner & Peter Mounce - French Microlight Tour**
December 12th	John Lowe – The Hampden Boys
January 9th 2014	Trevor Bailey – CEO, Classic Air Force
February 13th	AGM plus guest speaker Phil Hall, LAA CEO
March 13th	Scott Todd – Chinooks in Afghanistan
April 10th	Ken Craigie, LAA Chief Inspector

Additional events:

November 15th	Royal Navy Historic Flight visit (limited numbers, see details in item above)
Nov 30th – Dec 1st	The Flying Show, NEC
December 4th	Strut Christmas Meal, Ley Arms.

Tailpiece:

To raise funds for Breast Cancer Awareness, a total of 49 RVs flew in arrowhead to create the largest ever formation of civilian aircraft as they passed over the Kansas City Chiefs American football stadium on 13th October. See links to more stunning photos, videos and comments from the pilots who participated at *http://www.vansairforce.com/community/showthread.php?t=105357*
