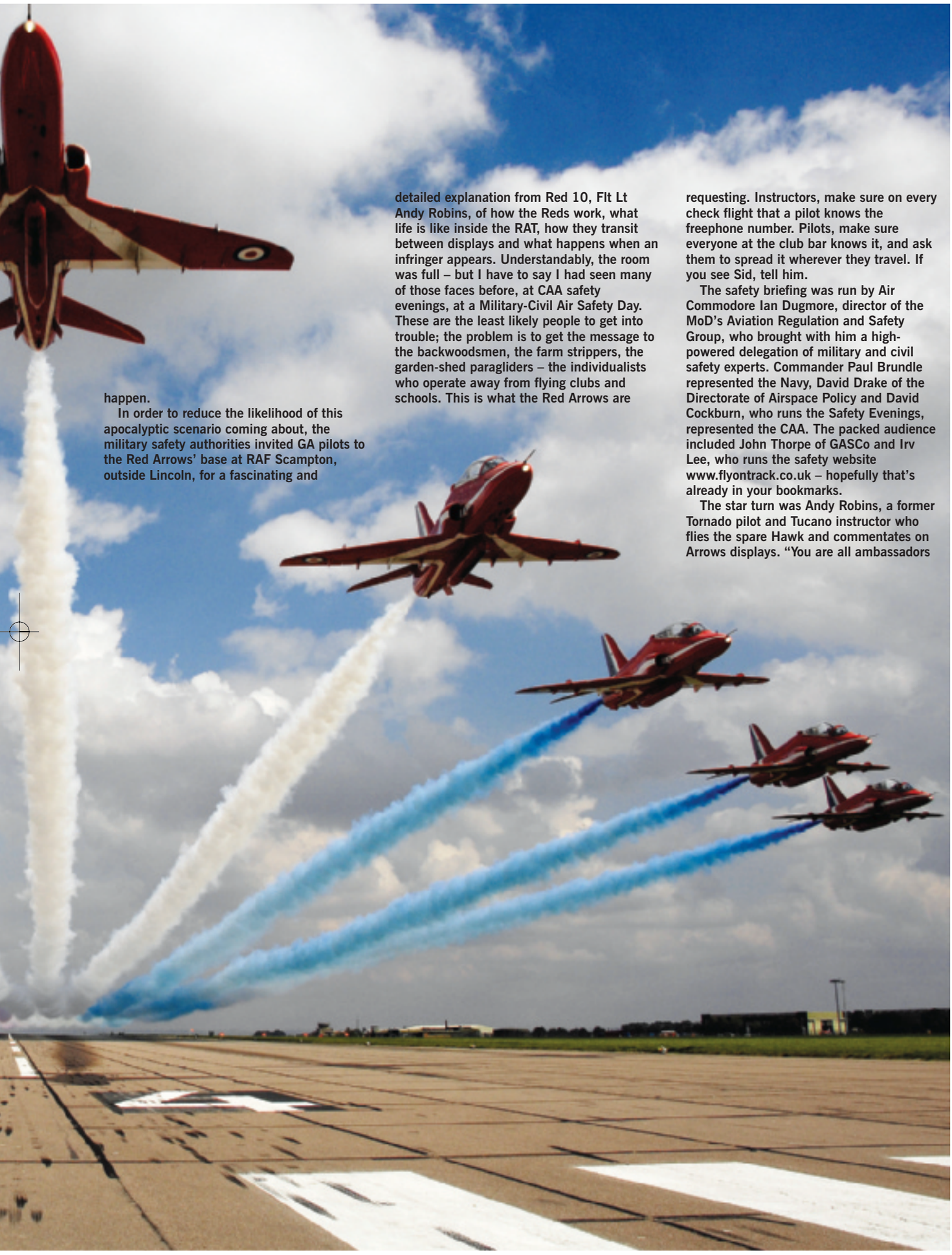
Nine's company, ten's a crowd

Infringements of Red Arrows RATs were up last year, so they've started an education and awareness campaign to get them down. ***Pat Malone*** *reports*

If you do nothing else in the cause of your own safety today, carve this number into the back of your hand with a knife – 0500 354 802. Better still, stick it in your mobile phone, or somewhere else where it won't heal over. Then, before you fly, give it a tinkle. It's free, it's easy and it could save many lives, starting with yours.

It's remarkable how many aviators don't know the AIS freephone number. The Red Arrows are desperate to burn it into everyone's consciousness because last year there was a significant increase in infringements of temporary restricted areas (RATs) established for their displays. If you escape with your life the CAA will definitely prosecute you for infringing an Arrows RAT, and fines are heavy. What's more, AOPA has knowledge of a number of moves by airshow organisers to pursue infringing pilots through the courts for the cost of cancelling a show. For various reasons they have not yet succeeded, but one of these days it will happen, and with legal fees the bill will run into many tens of thousands of pounds.

That, of course, will be a minor consideration if your infringement results in your own sudden, violent and spectacular death, quickly followed by those of several other people as two or three of the nation's best-loved aviation icons plunge into the crowdline. It must never be allowed to



happen.

In order to reduce the likelihood of this apocalyptic scenario coming about, the military safety authorities invited GA pilots to the Red Arrows' base at RAF Scampton, outside Lincoln, for a fascinating and detailed explanation from Red 10, Flt Lt Andy Robins, of how the Reds work, what life is like inside the RAT, how they transit between displays and what happens when an infringer appears. Understandably, the room was full – but I have to say I had seen many of those faces before, at CAA safety evenings, at a Military-Civil Air Safety Day. These are the least likely people to get into trouble; the problem is to get the message to the backwoodsmen, the farm strippers, the garden-shed paragliders – the individualists who operate away from flying clubs and schools. This is what the Red Arrows are requesting. Instructors, make sure on every check flight that a pilot knows the freephone number. Pilots, make sure everyone at the club bar knows it, and ask them to spread it wherever they travel. If you see Sid, tell him.

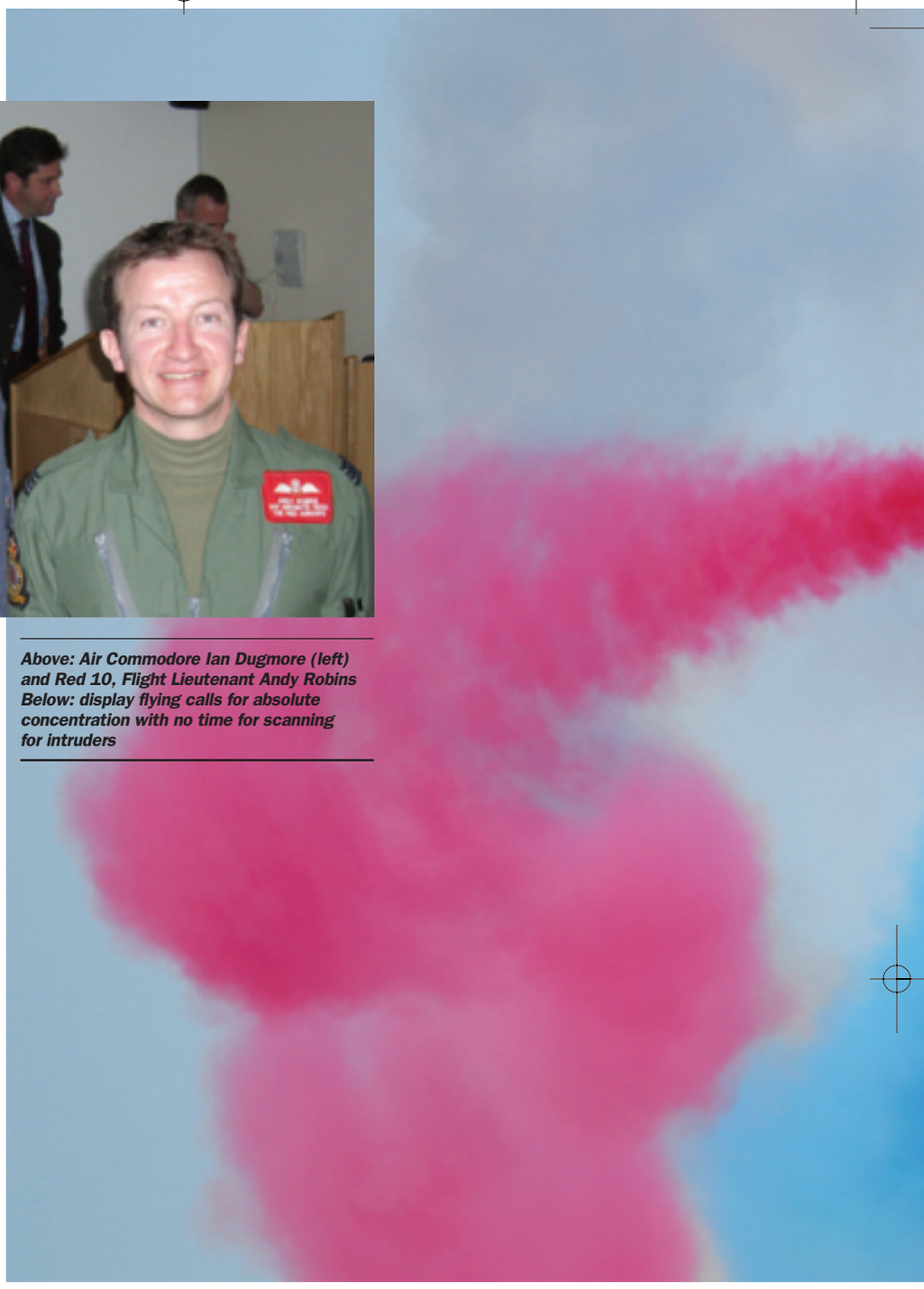
The safety briefing was run by Air Commodore Ian Dugmore, director of the MoD's Aviation Regulation and Safety Group, who brought with him a high-powered delegation of military and civil safety experts. Commander Paul Brundle represented the Navy, David Drake of the Directorate of Airspace Policy and David Cockburn, who runs the Safety Evenings, represented the CAA. The packed audience included John Thorpe of GASCo and Irv Lee, who runs the safety website www.flyontrack.co.uk – hopefully that's already in your bookmarks.

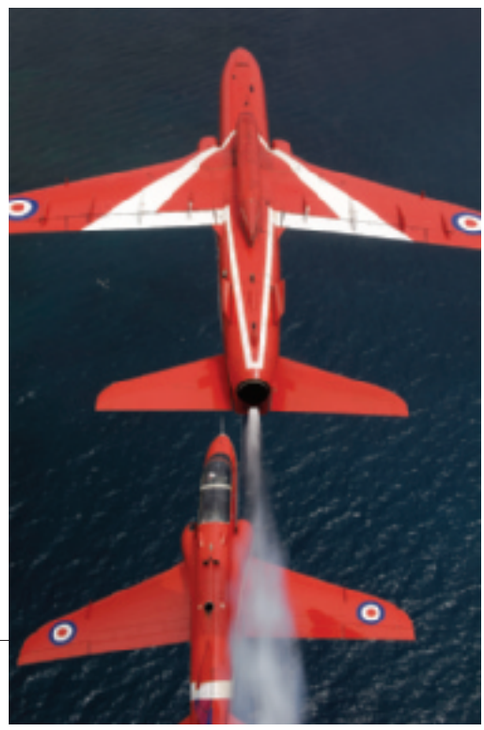
The star turn was Andy Robins, a former Tornado pilot and Tucano instructor who flies the spare Hawk and commentates on Arrows displays. "You are all ambassadors

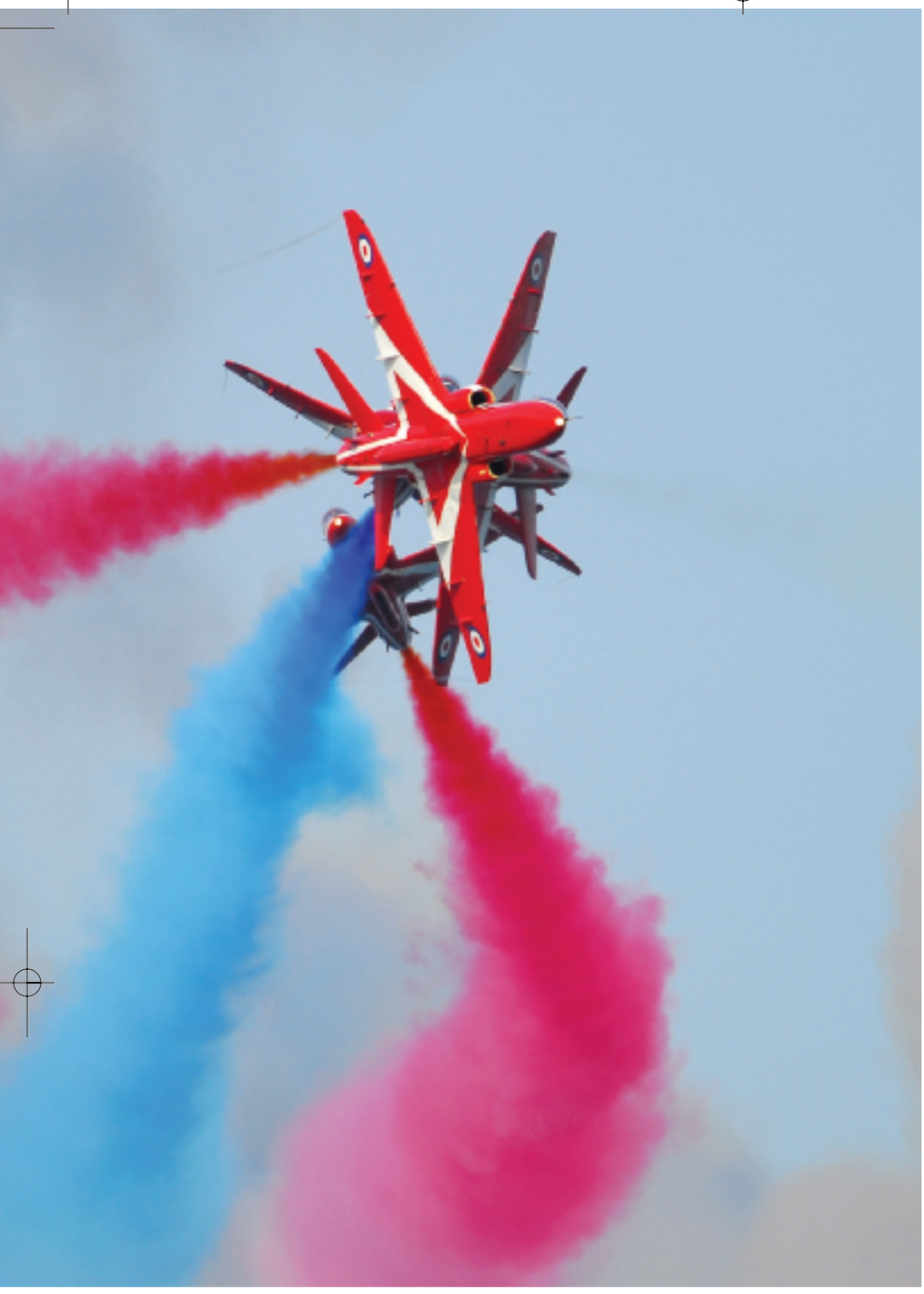
today," he told the audience. "Take this message back to your clubs, spread the word, especially to those who might be on the fringes of aviation society. The information is out there, on the phone, on the internet, it's available to everyone, and everyone should avail themselves of it. There's only room for nine aircraft in a Red Arrows RAT."

Robins said the military was doing less flying, but as bases closed, that flying tended to be concentrated in smaller areas. From Brize and Lyneham to Kinloss and Lossiemouth, RAF bases were getting busier. The Red Arrows, he said, do about 90 displays a year from 150-odd requests, usually doing two each display day, and they covered Europe from Finland to Eire. They got 1300 requests for flypasts, of which they did about 80. He gave as an example the weekend of 25th to 27th July 2008, where they'll start with a display at Lowestoft, transit to Bournemouth for a display at Portsmouth, then display at Middle Wallop and Long Marston, parking up at Brize, before appearing at Swanage and transitting to Newcastle for a display at Sunderland, then back to Scampton. (Do not, he cautions, use the Red Arrows website to plan your avoidance – do not use any other website but www.ais.org.uk, the only source of unimpeachable information).

Above: Air Commodore Ian Dugmore (left) and Red 10, Flight Lieutenant Andy Robins
Below: display flying calls for absolute concentration with no time for scanning for intruders



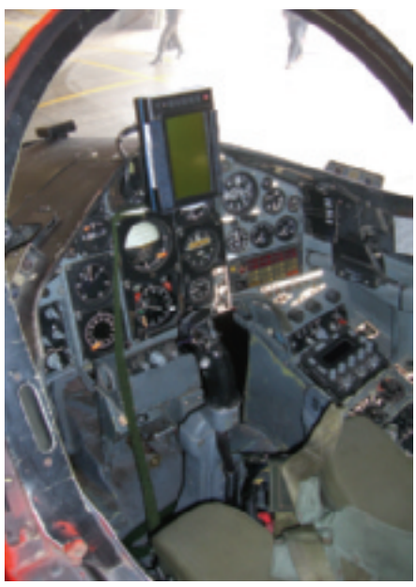




E.J. van Koningsveld

Flying between displays the Reds usually carry their 'circus' of travelling engineers, so there are two pairs of eyes in each plane. They fly through the air like an extended family of mongooses, eyes swivelling around the clock. Their transits are meticulously planned by a navigating pilot, who gets the avoids, the Notams, the weather. He allocates frequencies to individuals who will call local aerodromes and ANSPs as they go, feeding information in to 'the Boss' – Wing Commander Jas Hawker – whom everyone follows. Even so, as you can imagine on a sunny summer Saturday the sky is full of pop-ups. It's not unusual for the Reds to be unable to get a Radar Information Service and be operating on the 'see and avoid' principle at 360 kt and about 2000 feet. Their transit heights depend on terrain, weather and circumstance, and often they'll move lower to skyline other traffic.

Flt Lt Robins explained about how the Reds handle the weather – often having to cross and re-cross the same front between displays – and how their ground teams chase them around with dye for the smoke and so forth. There are some 80 to 100 personnel supporting the Red Arrows, on the ground and in the air. Red 10 is responsible for the site safety brief, reporting to the Boss on everything from obstructions to whether the crowd line is where they said it would be.



Flypasts are done at 1,000 feet, or at 500 feet if weather demands it. A display involves half an hour of intense concentration, in which the pilots are obviously not scanning for traffic. Their eyes are fixed on their points of reference on other aircraft, and an infringer is usually spotted by the Boss or by Red 10 on the ground. There can be little pre-planning for dealing with infringements, and real danger lies in unco-ordinated avoidance manoeuvres by nine aircraft in a tiny space. There have been occasions – one at Duxford last year – where the Boss had to carry on flying towards an infringer because he had aircraft rejoining him from every quarter, and it was the safest thing to do. That was a close one. They'll usually stop the display, identify the culprit, then work out plan B. They will not restart if the RAT is running out of time. Time is absolutely critical. In midweek the Reds will get the 'Wham', the What's Happening Manager, which has the weekend's procedures set out to the minute, and that schedule then dictates their every move.

Above right: Red Arrows Hawk cockpit - velcro on GPS holds 'pitch brief' during displays
Below: the Red Arrows safety briefing attracted a big crowd

Infringers come in all shapes and sizes, and they are keen to stress they are not simply laying all the blame on GA. Last year's infringements involved a Navy helicopter, commercial flights, microlights and paragliders as well as SEPs, and some were attributable to air traffic control errors. There were also several infringements of the Arrows home base at Scampton – R313 refers. "One was a student on a qualifying navigation exercise," said Flt Lt Robins. "He was having a faff with his radio and lost spatial awareness. He was a quivering mess when he landed, and I really felt for the guy. The CAA encouraged further training, and he really learned about flying from that. He made an honest mistake, and if he tells ten friends, and they each tell ten friends, we can have a positive outcome."

The second most common reason for RAT infringement after "didn't know it was there" is navigation error. The drift entered the wrong way, distraction, concentration lost… Flt Lt Robins says that when you're planning to avoid an RAT, bear in mind that the Red Arrows are not always going to be in it. They will take off and hold outside the six-mile zone, as will other participants in the air show, so don't plan to run along the edge of the RAT. Giving it a wide berth reduces the risk of navigation error putting you in the poo. And if you can, plan to stay outside the Reds' transit corridor. It shouldn't be a great inconvenience because they go through pretty quickly.

In answer to questions, a number of interesting points were made. If you encounter the Reds unexpectedly, you're more conspicuous broadside-on than head-on, so consider turning. The military paint their training aircraft black for conspicuity. You don't have to go that far, but a colourful flash of paint might help. While the Reds don't yet have TCAS, always put your transponder on, Mode-C if you have it.

*If you're having trouble getting a narrow route briefing out of the AIS website, have a look at the detailed explanation Mike Cross wrote about it in the October 2007 issue of *General Aviation*. You can download the article from the web – go to www.iaopa-eur.org, click on 'GA magazine' on the left, then click on 'Oct 07'. The article is on pages 16 and 17. ■

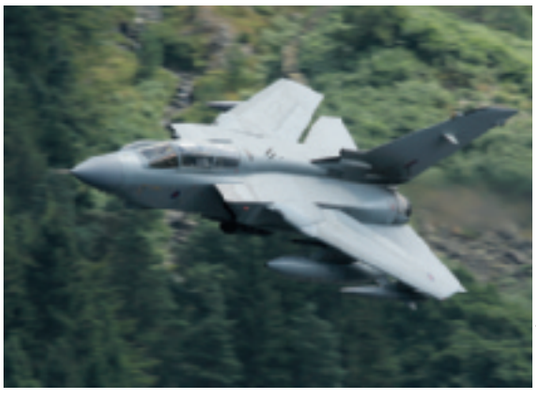
That's not supposed to be there...

David Drake of the CAA's Directorate of Airspace Policy, who had come to brief pilots on airspace infringements in general, confessed that he knew he was preaching to the converted, and that the people who needed to hear the message were those who were most difficult to find. Much depended, he said, on the ability of word of mouth to spread the gospel.

Drake, a former RAF air traffic controller, said one recent infringement at Heathrow was estimated to have cost £50,000 in extra fuel burned and had delayed thousands of passengers. 'There has never been a mid-air collision as a result of an infringement,' he added, 'but every one carries a degree of risk.'

Although figures showed an increase in the number of infringements in recent years, this was probably because reporting had been encouraged in order to paint a complete picture of what was happening. 'The figures must be taken with a slight pinch of salt,' Mr Drake said, 'because marginal infringements which might not have been recorded in the past are now being routinely reported in order to improve our understanding.'

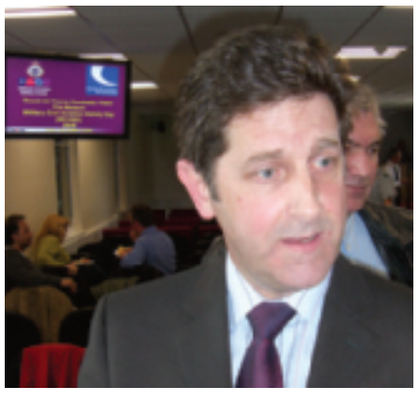
GA in all its forms is responsible for 74% of infringements, military aircraft 13%, 11% are unknown and AOC operators add the other 2%. The GA contribution would be reduced to 55-60% if foreign aircraft were excluded. 90% of infringements are in the London FIR, and 65% of them involve the London TMA. In the opinion of one or other of the pilots involved, 3% of infringements lead to an airprox.



Philip Stevens

Prosecutions are extremely rare. Of 633 reported infringements investigated in 2006, 40 were considered for further action, of which 19 led to a caution and only five to the courts. 'We prefer the carrot to the stick,' said Mr Drake. 'We recognise the complexity of airspace and the need for all sides to work together to reduce risk.

'The number of GA movements is unknown, but it's pretty massive, so the number of infringements represent a minute proportion of the traffic,' he went on. 'There are hotspots around Stansted and Luton. Danger areas are also infringed regularly, including firing ranges on Salisbury Plain, Otterburn and Spadeadam during live firing exercises.'



Above: David Drake from the CAA's Directorate of Airspace Policy
Left: RAF Marham feeds Tornadoes into the East Anglian AIAA
Right: 'pilots infringe free-fall parachute drop zones with very little thought'

He warned that pilots were not treating gliding and parachuting sites with enough care. 'A quarter-inch cable at 2,000 feet can ruin your day,' he said. 'Parachutists are difficult to see – yet people infringe these areas with very little thought.'

Causal factors for inadvertent infringement include navigation error, including finger-trouble with the GPS, pilots getting lost, and out of date charts. Pilots repeatedly enter controlled airspace despite an instruction to stand by, and comms difficulties are involved in a significant proportion. To reduce your own risk of infringing, practice your navigation – it's a skill that needs to be polished – use the correct RT procedure, understand that 'stand by' means just that, call ATC when it's available, and use your transponder, Mode-C if you have it.

'The problem will not go away,' Mr Drake says, 'but we must do everything we can to reduce the risks.'

Flt Lt Andy Valentine and Sqn Ldr Steve O'Neill gave pilots a briefing on flying in the Lincolnshire – East Anglia area, pointing out that it is the busiest military airspace in the UK. Cranwell is Britain's most active RAF base, and within a few minutes' flying time you've got the Red Arrows at Scampton, Typhoons at Coningsby, Harriers at Wittering, Tornadoes at Marham, Waddington, Barkston Heath, Cottesmore, Lakenheath, and in the middle of it all, the Wash ranges, with transit traffic coming and going. 'An Area of Intense Aerial Activity,' said Flt Lt Valentine, 'does exactly what it says on the chart.'

In the same area, Doncaster/Sheffield and Humberside were seeking more controlled airspace, and the 'western airways extension' was chopping five miles out of the available Class G. Keep your eyes open, talk to ATC, and – you know this one by now – use your transponder, Mode C if you have it.

David Cockburn finished off the day by explaining RAF navigation procedures – they only check position and make corrections every six minutes and spend the rest of the time flying their aircraft – and explained the basics of navigation by GPS, something that is growing out of the Airspace and Safety Initiative's education arm, ACEP. His main point is that GPS should only ever be used as a secondary navigation system, and you have to apply a proper nonsense check – the 'gross error' evaluation – at every turn because 'if you put peanuts in, you get monkeys out'. ■