

# ELTs – to buy or not to buy?

IAOPA is fighting a rearguard action against ICAO proposals for yet another compulsory box in the aircraft, as **Pat Malone** reports



The International Civil Aviation Organisation is reconsidering its insistence that all general aviation aircraft be equipped with fixed Emergency Locator Transmitters – a move that has been welcomed by AOPA, which has fought a sustained campaign against compulsory fixed ELTs.

AOPA has long maintained that PLBs, the Personal Locator Beacons which are worn by the pilot or passengers rather than fitted to the aircraft hull, are a better bet. There are signs that ICAO, which has always intended that fixed ELTs should be compulsory by July 2008, is coming around.

Dr William R. Voss, director of ICAO's Air Navigation Bureau, told IAOPA's World Convention in Toronto that in view of the concerns that had repeatedly been voiced by IAOPA over the ELT issue as it applied to general aviation aircraft, he would look again at the matter, probably early in 2007.

While the primary reason for the rethink was the complexity of the GA fleet and the difficulty of establishing a one-size-fits-all ELT solution, he would also take the opportunity to look at the case for PLBs.

Major changes are under way to satellite services, and many of us who already have ELTs and PLBs will have to upgrade to keep pace. As always the technology is moving ahead rapidly, but regulatory uncertainty makes reading the situation difficult.

For those who are deciding right now whether to fit an ELT, the advice is to hold off. The retailers agree – Stephen Gosling, sales director of Adams Aviation, says: "Unless you're operating a public transport aircraft, it would be sensible to delay until there is more clarity about ICAO's intentions." Transair's Tom Moloney says: "I'm not even offering fixed ELTs right now. There are some excellent PLBs, the McMurdo Fastfind being a particularly good example – small, capable, and very good value."

Over the years AOPA has argued at ICAO that the in-service performance of fixed ELTs has not been brilliant. Often when aircraft have crashed on land ELTs have been damaged beyond use or their signals have been masked by terrain. When they go down in the sea, the transmitter usually goes straight to the bottom and is useless. PLBs, on the other hand, remain with the survivors in the sea, while their activation on land usually tells rescuers there's probably someone left alive – most are triggered manually.

AOPA recommends that every GA pilot should look at buying a PLB – the best one you can afford – especially if you are flying over water or over difficult search and rescue terrain such as Wales or Scotland. The latest generation of PLBs can reduce rescue times dramatically and cut search areas down to a few yards. AOPA UK's chief executive Martin Robinson says: "A good 406 MHz PLB is one of the best investments you can make in the cause of your own survival, especially if you fly in areas that are challenging for S&R."

The 406 part is important. First-generation ELTs transmitted on 121.5 and 243 MHz, while the current generation uses 121.5, 243 and 406 MHz. Partly because of the large number of false alarms on 121.5, the satellite tracking system is moving entirely to 406 MHz, and 121.5 MHz will be turned off in January 2009. With current coverage, 121.5 and 243

ELTs are only detected over around 60 percent of the earth's surface – another reason why the system is moving to 406 MHz, which provides almost total coverage.

ELTs have only been around since the 1970s but until 1994 there was no ICAO standard for their carriage. But at that time, ICAO Annex 6 Part II required that all GA aircraft operating on extended flights over water (100 nm from land) and over 'land areas designated by the State concerned as being specially difficult for S&R' should be equipped with an ELT.

That specification has changed over the years to include more and more aircraft, until it was decided that after January 2005, all aircraft must be equipped with an automatic (fixed) ELT. The deadline has been moved several times to allow the industry time to equip and now stands at July 2008.

IAOPA's representative at ICAO Frank Hoffman has consistently argued that fixed ELTs were not the solution for GA. In documents submitted to ICAO he said: "SARSAT statistics proudly proclaim SAR events assisted by emergency location devices, yet they neglect to include the number of events in which either equipment or systems did not perform satisfactorily. Numerous anecdotal reports attest to these failings.

"Improved equipment specifications over the years have yielded incremental reliability improvements, yet ELT activation/alerting failures are all too common."

AOPA believes the all-encompassing requirement for ELTs is ill-advised. "80 percent of the world's civil aircraft are slower, shorter range and prop driven. Oceans, deserts, jungles and Arctic areas are rarely frequented by these aircraft, and the new requirement poses an unreasonable burden on them," Hoffman said. He added that PLBs offered a reasonable and more economical alternative for smaller, short range aircraft.

The international rescue system is based on a network of American, Russian, Canadian and French satellites known as COSPAS-SARSAT (SARSAT meaning Search and Rescue Satellite Aided Tracking). The system relies on two separate arrays – four Low Earth Orbit Search and Rescue (LEOSAR) satellites which orbit every 100 minutes, and three geostationary



Left: McMurdo FastFind - "small, capable, very good value"

Above: flying over challenging S&R terrain - how long would it take them to find you?



**Left: a PLB signal transmitted via COPAR/SARSAT can summon help in minutes**  
**Right: public transport operators need fixed ELTs, but does GA?**



satellites (GEOSAR) which are in constant contact with the earth. When one of these satellites picks up a distress signal on 406 MHz it sends an alert to one of a network of automated ground stations worldwide which then forward the alarm to the nearest search and rescue authority. Unlike the 121.5 system, the satellites continue to relay the distress message of a triggered 406 beacon until a ground station acknowledges it, avoiding the worrying scenario that used to happen where beacons were noticed by satellites but not received at ground stations.

Robert Hill, managing director of McMurdo, says: "The 121.5 phase-out has already started, with the Russians switching it off this year. The new generation of 406 MHz PLBs are almost pocket-sized and are much more

accurate than those they are replacing, especially when they are GPS capable.

"They're like car airbags – you hope it's never used, but when you need it, it's the most precious asset you have."

A basic 121.5 beacon has an accuracy of 20km, giving a search area of 1,260 square km. Adding 406 MHz narrows the radius down to 3km, reducing the search area to 28 square km, while a 406 beacon with integral GPS like McMurdo's Fastfind Plus narrows it down to 100 metres.

Adams Aviation's Steve Gosling says that US surveys show the average time before rescue when a VFR flight without a flight plan comes down is 62.6 hours – 15.6 hours before someone is despatched to find you, and 47 hours to find the site. Chris Wahler, marketing director of Cobham subsidiary ACR Electronics, adds: "Each year on average in the United States 80 people die in GA crashes. It is reported that half die on impact and the other half live between four to eight hours. It's not known how many of those would have survived had help arrived sooner."

"There are many crash scenarios that can render a fixed ELT useless. Since a PLB is

manually activated, a distress alert from a properly-registered beacon tells SAR that there are survivors. A GPS-enabled PLB will let SAR know on average in 15 minutes the survivor's location within 100 metres."

Some current PLBs weigh less than eight ounces, and they will get smaller and lighter in future. While the next generation will be no bigger than a large mobile phone, the main difference is that a PLB has a 5w transmitter that must send a distress signal for 24 hours after sitting idle for five years, so we're not talking mobile phone technology here.

There are dozens of ELTs and PLBs to choose from, including some hybrids – units that are fixed to the hull but which are removable, with portable antennae. Perhaps the best option would be a belt-and-braces approach, with a fixed ELT in the aircraft and a PLB in your pocket – but it has to be the pilot's decision, especially as fixed ELTs cost on average about four times as much as PLBs.

IAOPA's position is that as far as GA is concerned, ICAO should rule that either aircraft of less than 5,700 kg should be equipped with an ELT of any type when operated for extended flights over water or difficult S&R territory, or that such aircraft shall be equipped either with an approved ELT or a PLB. ■

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Such is the difference it makes, that the US Coastguard have equipped all their operational personnel with McMurdo FASTFIND PLBs as part of their standard equipment.

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