

LIGHT AIRCRAFT GO HI TECH

An equipment survey reveals the extent of uptake of new technologies reports *Caroline Tulip*.



Increasing complexity: Most aircraft now carry GPS, and there is an increase in carriage of moving map displays, transponders and ELTs.

It's the largest survey ever done of what equipment is fitted to light aircraft in Australia.

Nearly 5000 of the more than 14,000 owners and operators of aircraft of less than 5700 kg maximum takeoff weight – including sports aircraft other than paragliders and hang gliders – were asked late last year to indicate what equipment they carried. Sixty-three per cent responded.

The results give a comprehensive picture of changes in the composition of the light aircraft fleet as well as the impact of new technology and regulatory changes. The survey updates a similar study completed in 1994.

The increase in GPS carriage since 1994 is dramatic. A decade ago, 39.1 per cent of light aeroplanes carried GPS; in 2004 this had risen to 76.7 per cent. While portable units are only approved as supplemental navigation aids, just under half of the aircraft surveyed carry these units. Most of the GPS units carried in the sports registered fleet are portable.

The data show that the light aircraft fleet is starting to carry moving map and multi-

function displays, with around one in eight aeroplanes and helicopters reporting their use.

There has been relatively no change in transponder fitment of aeroplanes and helicopters since 1994, although the survey reveals a slight increase in the proportion of Mode A/C transponders. Between 3-4 per cent now carry mode S transponders. Mode S transponders are mainly being carried in IFR helicopters (11 per cent) and IFR aeroplanes (7 per cent).

There has been a ten-fold increase in the proportion of ultralights carrying an SSR transponder.

ELTs and radios: The introduction of requirements for use of emergency locator transmitters (ELTs) in 1997 has resulted in a rise across the board in ELT carriage. There are a number of exemptions to the requirement, but the data show that many owners and operators of sports aircraft are using portable ELTs even though they are exempt from mandatory carriage.

Carriage of 406 MHz ELTs is low, but is expected to rise dramatically as the 2009 dead-

line to switch from 121.5 MHz to the new frequency approaches.

The data show an increase in Satcom use as the equipment has become more affordable. VHF radio carriage is unchanged since 1994 for aeroplanes and helicopters but has increased in the sports-registered fleet.

Carriage of DME has dropped considerably, reflecting the decommissioning of DME (A) and a migration from use of traditional nav aids to GPS.

Analysis of the size of the CASA-registered fleet shows growth since 1994 of around 18 per cent – between 1 and 2 per cent per annum. As a proportion of the fleet, helicopters and amateur built aircraft have increased. The ultralight fleet is now growing at 6 per cent a year.

The results of the survey will provide the safety regulator with up-to-date information on equipment carriage for benefit-cost studies and risk analyses associated with proposals for rule change.

Caroline Tulip is CASA's regulatory impact analyst.

EQUIPMENT IN LIGHT AIRCRAFT, DEC 2004

	Airframe category < 5,700 kg MTOW	% VHF Radio	% GPS	% Installed GPS	% Transponder	% 121 MHz & 406 MHz ELT	% 406 MHz ELT	% Moving map/MFD
CASA registered	Aeroplanes	96.4 [97.1]	76.7 [39.1]	41.9	79.6 [80.6]	86.7 [60]	10.9	12.4
	Helicopters	97.4 [99.5]	78.2 [64.2]	43.8	74.7 [76.7]	93.2	16.3	14.7
	Balloons	82.8	81.0	0	4.0	4.0	0	8.6
	Gliders	84.2	53.8	13.6	4.4	26.3	4.1	6.0
	Amateur built aeroplanes < 544 kg MTOW	82.8	50.0	9.4	17.2	54.7	7.8	4.7
SPORTS registered	RAA Ultralights	76.2 [64.6]	71.6 [20.2]	6.4	9.9 [0.9]	46.6 [6.8]	4.9	9.5
	ASRA Gyroplanes	44.5	45.3	1.5	0	18.2	0	2.9
	HGFA Trikes	73.2	70.1	3.1	0.8	37.5	1.9	8.4

[] indicates results of 1994 survey