

with a baseline maximum take-off weight (MTOW) of 365,000kg (803,000lb) – at that time 90,000kg heavier than the heaviest -300. But, during production, Airbus established that the structure could allow the weight to be increased by 3,000kg to 368,000kg. “This has allowed us to offer -500 customers 150nm [280km] more range than the 8,500nm originally specified,” says McConnell.

Other maximum weights have been increased in parallel, with zero fuel and structural payload both up by 2,400kg, to 225,000kg and 56,500kg respectively, while landing weight has been increased by 4,000kg to 240,000kg.

Much effort has been made in the production of the new family to reduce the empty weight with, for example, titanium used in the landing gear and engine mounting pylons. However, the early A340-500/600s have weighed in heavier than the target, with the deficit believed to be around 850kg. This is largely thought to be associated with the aircraft's wing.

## Weight savings

“We’ll be back on our specification target with aircraft delivered next year,” says McConnell, who adds that a weight-saving programme is expected to bring the new A340 models within 0.4% of the originally specified empty weight by aircraft number 23. This is believed to be the first A340-500 for SIA.

The weight-saving effort, which Airbus UK’s Filton plant is masterminding with input from its new US office in Wichita, Kansas, is understood to be focused on reducing material used in various stringers and ribs in the wing, as well as by remov-



**With the A340-600 poised for service with Virgin, Airbus can focus on the -500**

**The A340-500/600 are the first Airbus airliners to have Thales-supplied active matrix liquid-crystal displays**

ing material from some of the larger forgings within the structure.

Other key changes on the new family (see changes diagram on P42) include a revised fin and horizontal stabiliser to cater for the increased engine thrust, and new strengthened landing gear with an all-new four-bogie Messier-Dowty centre landing gear, incorporating its own braking system (this replaces the twin-wheel unit on earlier A340s). For the -500, Airbus has also done away with the overwing enlarged Type III emergency exit needed on the -600 to comply with the US Federal Aviation Administration’s “60ft rule” which dictates the maximum distance between exits.

The A340-500/600 both incorporate Airbus’s standard fly-by-wire glass cockpit and sidestick controls and are approved for single type-rating with earlier A340 models. They are the first to be equipped with Thales-supplied active matrix liquid-crystal displays which will gradually become standard on the other models.

Airbus has heavily revised the A340’s passenger cabin and is redeploying the changes into established A330/A340 models as part of the Enhanced programme. The main cabin area has been thoroughly restyled and includes new overhead bins. Light emitting diode (LED) lighting replaces halogen bulbs and provides much greater flexibility in the way illumination is distributed.

A new touch-screen flight-attendant panel has been developed to allow the display and control of more data than before, and enable cabin crew greater choice in choosing lighting colours and dimming combinations.

The -500’s direct competitor is the -200LR derivative of Boeing’s 777 twin-jet, which has a tentative mid-2005 in-service target. Boeing has just one customer – EVA Airways – for the 777-200LR. Last year the US manufacturer

put the aircraft’s development on ice, pending an improvement in trading conditions. A second competitor has recently emerged in the form of a 747-400X derivative equipped with a spacious 250-seat cabin offering a range of around 15,800km.

Airbus claims several benefits over the -200LR. An A340 operator has “four-engine freedom”, not having to be concerned with extended-range twin-engined operations regulations that apply to the 777. The A340’s nine additional seats are worth \$9 million annually, says the manufacturer, while direct operating costs are around \$900,000 less per year.

Airbus also says four Trent 500s are 10-12% cheaper to maintain in engine direct maintenance cost (DMC) terms than the two General Electric GE90-110/115Bs powering the new 777 models. The -500’s overall DMC (airframe, engines and nacelles) is 7% lower than for the 777-200LR, according to Airbus.

## Software delay

Flight-testing of the A340-600 began in April last year, around four months later than planned, due to a delay in the installation of new design software at suppliers to BAE Systems. The new model was awarded European Joint Aviation Authorities certification on 29 May, following completion of its 1,600h test programme.

Deliveries of the new airliner family kicked off this month, with the handing over to Virgin of the first of 10 -600s. Initial A340-600 deliveries are running around three to four months behind the original schedule as a result of delays to the first flight. This has had a similar effect on the -500’s schedule.

Virgin’s initial -600 services will be between London Heathrow and New York Kennedy. Airbus has put specific measures in place to ensure that Virgin’s initial A340-600 flights go as smoothly as possible. **CONTINUED ON P56**

