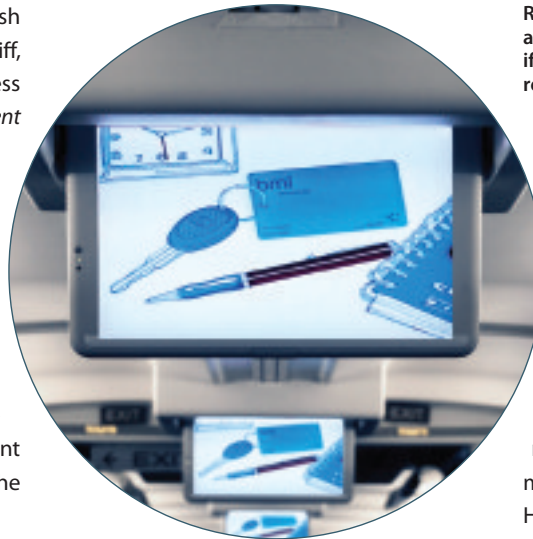
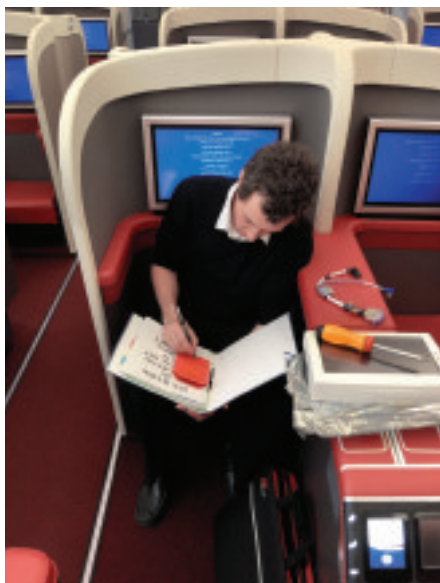


maintenance at its associate company British Airways Avionics Engineering (BAAE) in Cardiff, South Wales. Mark Thomas, from the business development team, informs *MRO Management* that over 30 technicians at Cardiff are engaged in IFE work. BAAE opened a dedicated shop there in April 2005 to handle a growing IFE workload, the activity having previously been absorbed into existing avionics and electrical shops. The shop handles most of its parent airline's IFE base maintenance, though a number of line-replaceable units (LRUs) needing rectification and overhaul are sent to the relevant OEMs – chiefly Rockwell Collins, supplier of the airline's bTES equipment.

Virgin Atlantic also has its own IFE capability. A team of professional technicians at its Gatwick-based cabin avionics IFE group are experienced in maintaining Panasonic (formerly Matsushita) 2000/2000e and 3000 equipment, plus Rockwell Collins 150i and Thales MDDS systems. Virgin invested substantially in equipment and technician training when gearing up for its latest software-intensive audio and video on demand (AVOD) systems. A core of dedicated IFE technicians is supplemented by scores of cabin technicians having basic IFE capability. An IFE development team can be called upon for assistance when required.

### Third-party revenue

Sometimes a decision to 'keep it all in-house' owes much to the organisational culture, especially where the operator concerned has a tradition of carrying out all of its own engineering.



A few operators have not only elected to maintain their own IFE, but have made this activity into a revenue stream by taking on work for third parties.

One such is Germany's Lufthansa; while MRO heavyweight Lufthansa Technik (LHT) makes great play of the fact that it is organisationally independent of the parent airline, commitment to Lufthansa is clear in the comprehensive support it provides for the carrier's IFE. Nevertheless, this aftercare also extends to third parties, which have included the likes of Singapore Airlines, Emirates, Gulf Air, ANA and Spanair; Qatar Airways is a recent addition.

A dedicated IFE section within a main components shop at Frankfurt handles LRU troubleshooting and repair. According to LHT, capability includes, all power and control units, seat boxes, head-end equipment, wiring and other items for the IFE systems used by Lufthansa – principally products of Panasonic and Rockwell Collins. Although most repairs can be undertaken either here or in the MRO's major avionics shop, on occasion it is expedient to send LRUs to the repair facilities of the respective OEMs.

In addition to activities at Frankfurt, full IFE inspections and overhauls take place at Hamburg and other major LHT engineering bases during aircraft heavy engineering checks. LHT says that being licensed to work both on components and on the aircraft facilitates optimal workflow scheduling and trouble-free handling, including 'release to service'.

**Airline Services provides on-wing support backed by workshop services. It recently assisted Arik Air of Nigeria with IFE services on the airline's newly acquired Airbus A340s** (photo: Airline Services Group)

**Reliability is essential for IFE systems; 99% on an A380 means four unhappy passengers and, if they are in First Class, a major customer relations problem** (photo: Airline Services Group)

### On the line

In many cases, an airline will carry out its own line and ramp maintenance, but contract out substantial repairs and base maintenance. Its own avionics technicians will carry out troubleshooting and minor repairs on the ramp, working in accordance with the company's inspection procedures manuals (IPM), component maintenance manuals (CMM) and airworthiness requirements. However, a number of carriers have discovered that this policy can be flawed. Experience suggests that it might be too much to expect avionic technicians to carry out both IFE checks and work on the standard flight deck avionics, all within the short block turnaround times imposed by today's tight operating schedules. Rather, it can pay to field teams of dedicated IFE technicians equipped with appropriate diagnostic and repair tools.

Virgin Atlantic is one airline that does this. Each aircraft is subjected to a daily inspection, as part of which one or two IFE technicians functionally check the overall system and all seat units. Straightforward snags are dealt with on the spot; if unit replacements are required, the unserviceable LRUs are sent to the airline cabin maintenance organisation's IFE shop for investigation and, for simpler faults, repair. For more substantial rectification, however, units are returned to the relevant OEM service organisations, principally with Panasonic, Rockwell Collins and Thales.

The role of cabin staff in maximising availability at passenger seats is important, and a number of airlines include an IFE element in their training programmes. A few go further. Air Canada, for instance, established a Help Line to support cabin staff seeking to clear snags arising before or during flights.

### Out or in-source?

With smaller fleet operators, regional and low-fare carriers, as well as start-ups, there is a tendency to out-source IFE support. Few such operators have in-house avionics capability that extends sufficiently to down-route locations to undertake any more than basic line maintenance themselves. For them, it makes sense to contract out IFE MRO to specialists. Where operators are

franchise partners of mainstream airlines, the work may go to the larger partner, but otherwise it is likely to end up either with a specialist third-party MRO or with one of the OEMs.

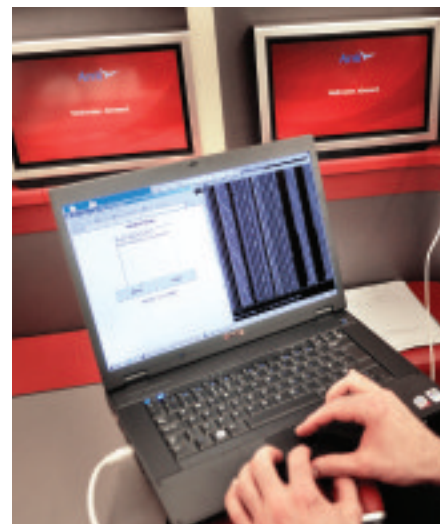
It is often the mid-range operator that finds the choice difficult. A growing regional airline that has possibly set up an embryo engineering facility might be tempted to think that its small and harassed team of avionic engineers can manage the IFE as well, thereby avoiding extra outlay. This can be ill-advised since IFE work is qualitatively different from that on flight deck avionics.

With perhaps 1,000 or more LRUs, including those at the passenger seats, a contemporary IFE system can double the complexity of an aircraft's avionics. Technicians have to compete for access with cleaners, security personnel, interior specialists, caterers and engineers from other disciplines during increasingly truncated turnaround periods. In this hectic environment they must carry out troubleshooting tests, remove faulty units for base attention, then replace them and re-check. They often have to

**While changes and 'glitches' can be addressed with software patches, leaving less need to delve into on-board hardware when a problem arises, the requirement for IT skills and the importance of rigorous software configuration control are greater** (photo: Airline Services Group)

rely on sketchy information provided by non-specialist flight or cabin crew in the aircraft's tech log or cabin logbook. Built-in test equipment can help, but much reporting is still verbal or on paper.

Another consideration is that IFE systems are handled not just by the cabin crew, but also by hundreds of passengers, some of whom damage the equipment. This can result in bent connector pins, cracked covers, chafed wiring or other damage. Dealing with these issues, along with basic electrical faults, such as a blown protection diode in a power supply or an LCD screen needing a new backlighting tube, requires wide capability, experience and resourcefulness. And, just as electronics hardware becomes more reliable, elusive software 'bugs' are taking up a growing proportion of technician time.



Technical departments clearly need specialist technicians with specific IFE training and background. A mix of analogue and digital experience should be accompanied by IT skills, particularly as systems become more software-intensive. Over and above these technical requirements, an ability to work under ▶

## AMASIS, Aircraft Maintenance & Spares Information System

More than 75 worldwide customers: airlines, MROs, air forces, state-owned companies, aircraft manufacturers, engineering companies.

Inside EADS Group, IFR France is the Aviation Software & Services specialist, with skilled, flexible aeronautics staff, committed to our customers.

Line Maintenance | Base Maintenance | Engineering | Planning | Procurement & Stores | Finance | Library

commercial@ifrfrance.com  
www.ifrfrance.com

