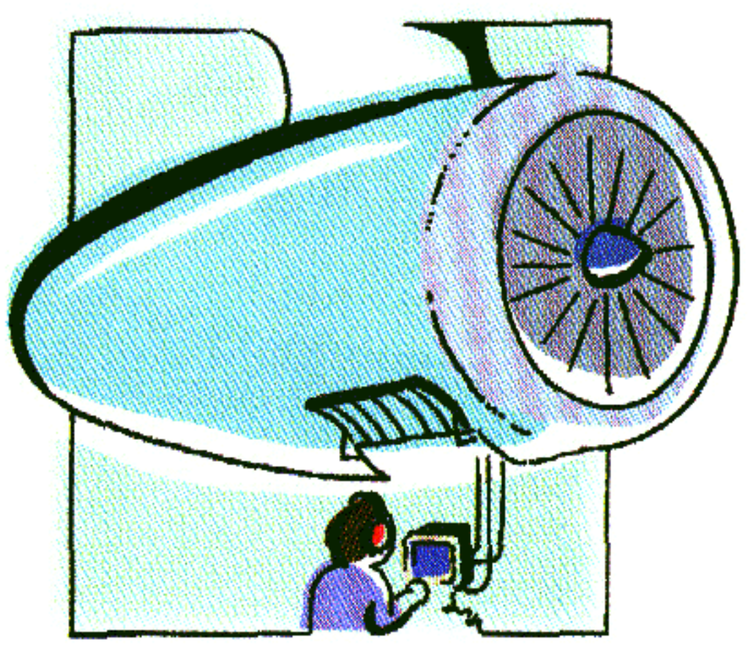
INDUSTRY *outlook*

EDITED BY PAUL PROCTOR

SON OF EUROFIGHTER

Studies are underway on block changes and future derivatives of the Eurofighter, including a stealthier version with an internal weapons bay. This would meet the U.K.'s requirement for a Future Offensive Air System to replace Tornados used for deep strike missions. The under-fuselage weapons bay would take the place of a center fuel tank. Conformal fuel tanks would be added to the upper fuselage to compensate. A "wet," or fuel-carrying, vertical stabilizer also is being considered to provide additional fuel volume. Other block changes being studied for Eurofighter include incorporation of an electronically scanned array radar, or an integrated sensor system with a single aperture.



LEAVE NO WAKE

A wake vortex warning and display system is one of several new cockpit safety technologies under study at Honeywell. As envisioned, airspace ahead of the aircraft likely to contain threatening wake vortices would be graphically displayed and annotated in yellow on an appropriate cockpit screen. The warnings would be compiled using an onboard database of aircraft wake vortex profiles, local wind information from onboard or offboard sources and data contained in nearby aircraft's ADS-B broadcasts, according to Frank Daly, president of Honeywell Commercial Electronic Systems. This technology also could improve airport capacity by allowing more closely-spaced landing streams when wake vortices are confirmed not to be a threat by flight crews, he said. Honeywell also is testing a low-cost storm cell tracking upgrade for onboard weather radars. It would add dashed white lines to radar or navigation displays to depict projected storm cell movements over the next 3-5 min., possibly even seven, allowing pilots to adjust course to avoid penetration. A proposed multi-sensor clear air turbulence detection and alerting system would combine data from onboard radar, lidar and infrared sensors with uplinked weather forecasts, and pilot reports, to warn flight crews of clear air turbulence from 3-120 naut. mi. ahead.

THAT MOON'S A BALLOON

Raven Industries earlier this month conducted a successful flight test of a scaled-down "super pressure" Ultra Long Duration Balloon (ULDB). The second prototype, only 10% the size of the planned research balloon, stayed aloft 27 hr. A previous attempt in October reached high altitude but ruptured. A full-scale ULDB engineering test version is scheduled to be launched next year and is being designed to stay aloft at altitudes up to 115,000 ft. for as long as 100 days, and to carry more than a ton of scientific instruments. Raven, based in Sioux Falls, S.D., is working with NASA's Goddard Space Flight Center on the project, which aims to dramatically reduce the cost of lofting research payloads now restricted to satellites. The program is within budget and New Zealand has been chosen as the location for the December 2001 launch of the full-size model, according to Mike Smith, a balloon engineer at Raven. As envisioned, a ULDB could circle the world several times then return its scientific payload, including high-resolution optical and infrared telescopes or X-ray and gamma ray telescopes, for refurbishment and reflight.

DATA CONVERTS

Perfect Image of Kirkland, Wash., has the first of two Kongsberg KartoScan FB 3 digital flatbed scanners up and running. The equipment precisely converts nondimensioned aircraft and engine component drawings and circuit board diagrams made on stable media, such as Mylar, into a digital format for manufacturing or archiving. The digital scanning system can scan drawings up to 60 in. wide, is laser-calibrated and has been independently certified to a 0.002-in. repeatable accuracy. This allows production of final vector drawings with a 0.005 tolerance in a variety of digital formats including AutoCad, Catia and Unigraphics, according to Eric Fleming, president. Perfect Image's newly refurbished, environmentally controlled scanning facility has room for up to four scanners. The CCD (charge-coupled device) camera-based FB 3 system also can scan "brownlines" and the outlines of sheet metal parts up to 0.75 in. thick. The company has demonstrated a 45-min. turnaround time for drawings related to Boeing airplane-on-ground services.

IT'S AYRES 7000 NOW

Ayres Corp. is marketing an updated version of the 40-seat LET 610 transport as the Ayres 7000. The upgrade includes two 1,940-shp. GE CT7-9D turboprop engines, a five-tube Collins Pro Line 2 panel and Hamilton Standard propellers. Price is set at $8.75 million, with FAA Part 25 certification expected about nine months after a U.S. launch customer is signed, according to President Fred Ayres. Two 7000s are flying, with 12 on the production line near completion. The high wing, pressurized transport is targeted at niche markets needing unimproved strip and short-field landing capability. Ayres hopes to sell about 12-15 7000s a year and is nearing its first U.S. sale, the company said. Ayres purchased LET, which is based in Kunovice in the Czech Republic, in 1998.