



ABOVE AND ABOVE RIGHT The Minor Maintenance Team looks after the Service Check, scheduled every 175 flying hours. *John Dunlevy/Carl Percey*

appraisal; new ones are fitted. We all remember that the engine scavenge filters are double units, a filter within a filter; one that looks clean on the outside may have debris trapped in the inter-space. Magnetic Chip Detectors are removed and any 'sludge' collected. A full oil-change may be called-up. Heat shielding and insulation around the engines is inspected; the cabin floor is lifted to inspect the under-floor fuselage fuel tank area.

Whereas the first two stages of the engine compressor can be examined by crawling into the intake, and the LP turbine and reheat assembly checked from within the jet pipe, the rest of the engine is viewed by borescope – the medical people have the same kit, but call it endoscope. There are blanked-off ports



at strategic locations throughout the engine, designed to take the miniaturised viewer, giving us either a direct view through the eyepiece or a larger picture on a portable screen; most of us prefer the clarity of the direct view. By these means we can see all stages of compressor, the combustion chamber and its vaporisers, the turbines and their nozzle guide vanes. Boroscope checks have both routine call-up and specific engine monitoring programmes. At one point we boroscoped the combustion chambers at every London visit; it saved millions of pounds in the long term as damage can be intercepted while it is still at the deterioration stage. We're looking for any foreign object damage through the compressor stack; small splits, tears, erosion, damaged vaporisers in the



LEFT A Sabena hoist in position on top of the wing, ready for an engine change. *David Macdonald*

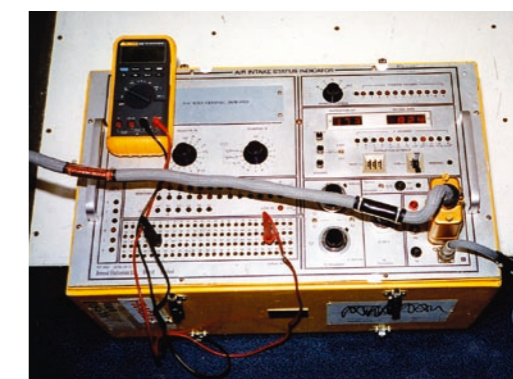
combustion chamber; cracks, nicks or burning at the turbine end.

The Maintenance Manual carries all details of permissible damage and the limits beyond which the engine must be changed. An engine change will be handled by our Minor Maintenance Team: we would complete the task, including an engine run, within one 8-hour shift using 6 men – 4 airframe/engine and 2 avionics.

The engine is secured by 6 mounting bolts – 4 main with nuts torqued to 1,950ft lbs and the 2 forward sets torqued to 475ft lbs. All accessory system and control couplings are released and a Sabena hoist is placed on top of the wing. The hoist's two cables are attached to the engine then the jet pipe is separated from the engine to provide about half an inch of clearance – that's all there is. When everyone is ready the hoist takes the strain, the six mounting bolts are removed and the engine is lowered onto a purpose-built trolley. Installation is pretty much a reverse of that process. A specific check-out engine run is completed in the run-up bay and oil filters are examined. A very full day's work.

The Inter Check is altogether different. It can take anything from one to three weeks to complete. There is a series of Inter Checks – 1, 2, 3 etc, each one concentrating on a particular zone, accomplishing deep inspections to structure, hydraulics, fuel, electrical cabling and components. The findings will become part of the aircraft's 'life extension' dossier. The aircraft is jacked in readiness for a gear swing – landing gear retractions and extensions. Many

routine component changes will be called-up. At some point during this check sequence all four engines will be dropped to facilitate cable inspection: this will be one of the longer checks, because heat from an SST's engine



LEFT The intake test set was used for trouble-shooting intermittent intake snags, plus the old faithful multimeter. *John Dunlevy*



RIGHT A rear view of the engine installation, minus of course its nacelles and engines. *John Dunlevy*



BELOW Intake minus its ramps. *John Dunlevy*