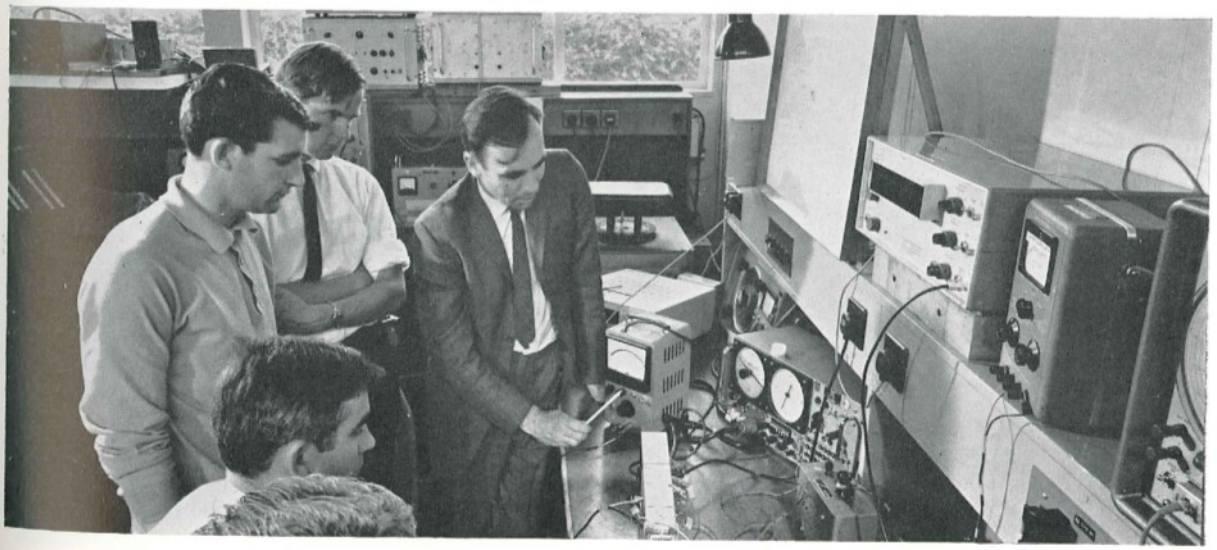
Aeronautical Division

The Marconi Company has been producing airborne radio equipment since the early part of the century. Indeed, the first air-to-ground wireless message transmitted from an aeroplane was sent over Marconi radio by a Canadian airman, J. D. A. McCurdy in 1910. The Company's Aeronautical Division is now the largest supplier and exporter of aviation electronic equipment in Europe. It is responsible for three-quarters of the United Kingdom market for civil airborne equipment and for nearly two-thirds of the country's total exports to both civil and military operators. Its equipment is installed in every type of aircraft, from hovercraft and helicopter to supersonic transport—aircraft varying in size from the *Beechcraft* to the *Concorde*. In 1967 the Division's latest solid-state, crystal-controlled radio compass received the Queen's Award to industry for outstanding achievement in technological innovation. The ILS components of its range of navigation equipment are doing service in the automatic landing systems in the BEA *Trident* and the BOAC VC10 and Super VC10.

Aeronautical Division is based at Basildon, Essex, within easy reach of all the main British Airports. Heathrow Airport, London and Gatwick Airport, London, are approximately 50 miles away and the proposed sites for the new international airport are easily accessible. Southend Airport, with its

Above: **HEADQUARTERS, LABORATORIES AND WORKS** *of the Marconi Aeronautical Division*

TRAINING *The Aeronautical Laboratory at Marconi College, where customers' engineers are seen studying one of Marconi's latest radio compasses*



frequent services to the Continent, is 12 miles to the east.

Research and Development

Development work on airborne equipment is carried out in the Division's laboratories which have a large staff of highly qualified and experienced engineers who work in close co-operation with the design engineers and design office staff. They are supported by a large workshop, which produces 'breadboard' and development models of new equipment and is fully equipped with the latest machinery for the production and testing of units and systems during the early stages of development. The development engineers' own considerable basic research work is supported by the Company's Research Division. An example of their farsighted approach is the extent to which they have applied microminiaturization techniques both to increase reliability and to overcome weight/size problems.

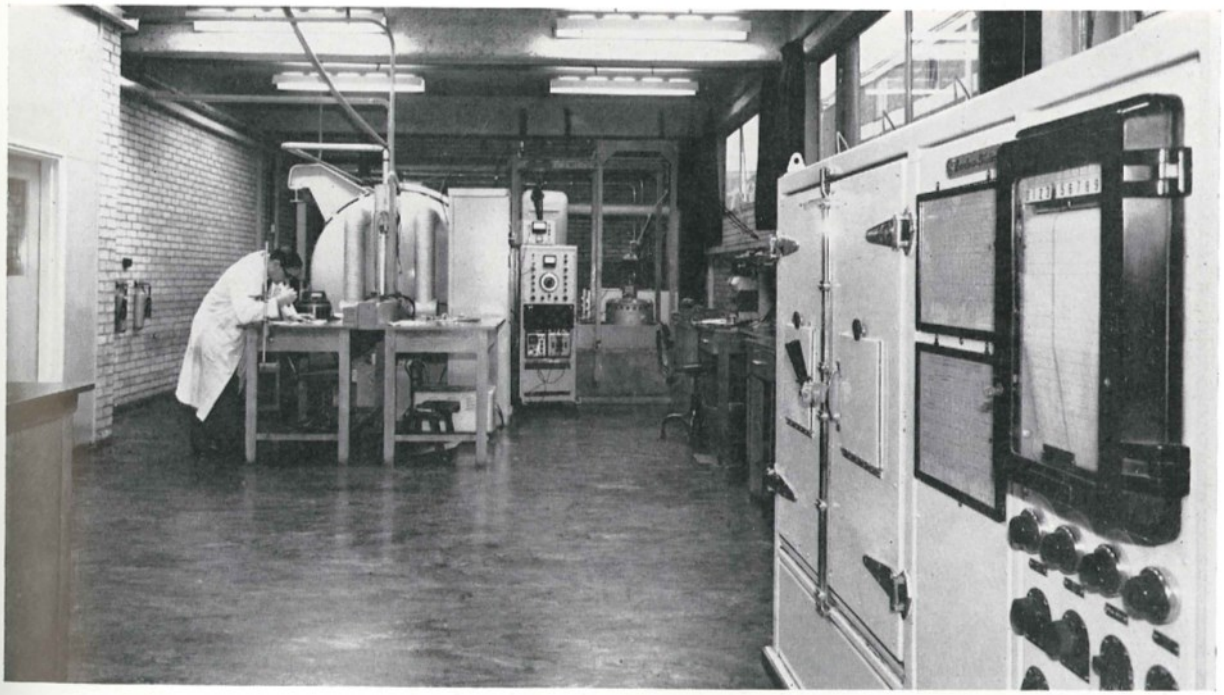
Reliability Engineering

Reliability is of the utmost importance in airborne navigation and communication equipment and so too

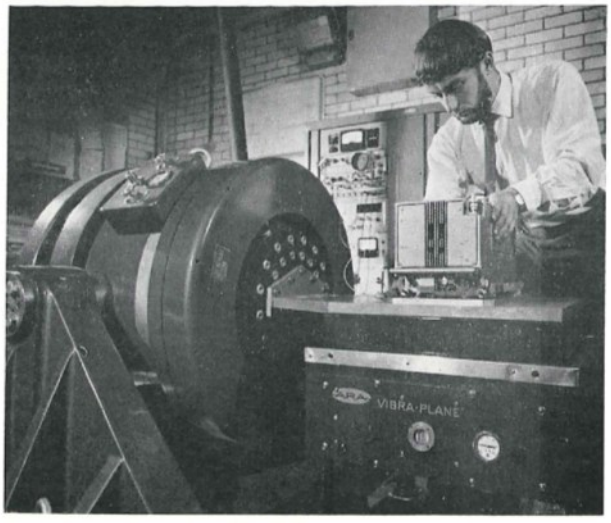
is the clear, accurate indication of any equipment failure. Reliability and the fail/safe philosophy are keystones of Aeronautical Division's design engineering. Special reliability tests are applied by the Reliability Engineering Group to all phases of the design. The most up-to-date facilities are available for environmental testing to both civil and military specifications and include highflow temperature chambers and vibration tables. Each circuit is tested at extremes of component tolerances, allowing additional factors for component aging. Components are chosen on the basis of reliability and no new types are introduced without exhaustive trials. Special circuits are incorporated to protect transistors against transient voltages. The same stringent standards are applied to all aspects of mechanical design.

Flight Testing

The Aeronautical Division has its own Piaggio 166 aircraft which is used for the flight-testing of equipment. It is also used as a flying laboratory for the development of new avionic equipment and as a demonstration aircraft. It has been extensively modified and now carries a wide range of Marconi airborne communication and navigation equipment. The



Above: **ENVIRONMENTAL TEST,** and Right: **VIBRATION TEST** *The development laboratories at Basildon are equipped with the latest facilities for environmental and reliability testing*



Left: **MAINTENANCE** *A Marconi engineer carries out routine maintenance on a BOAC Boeing 707 at Heathrow Airport, London*

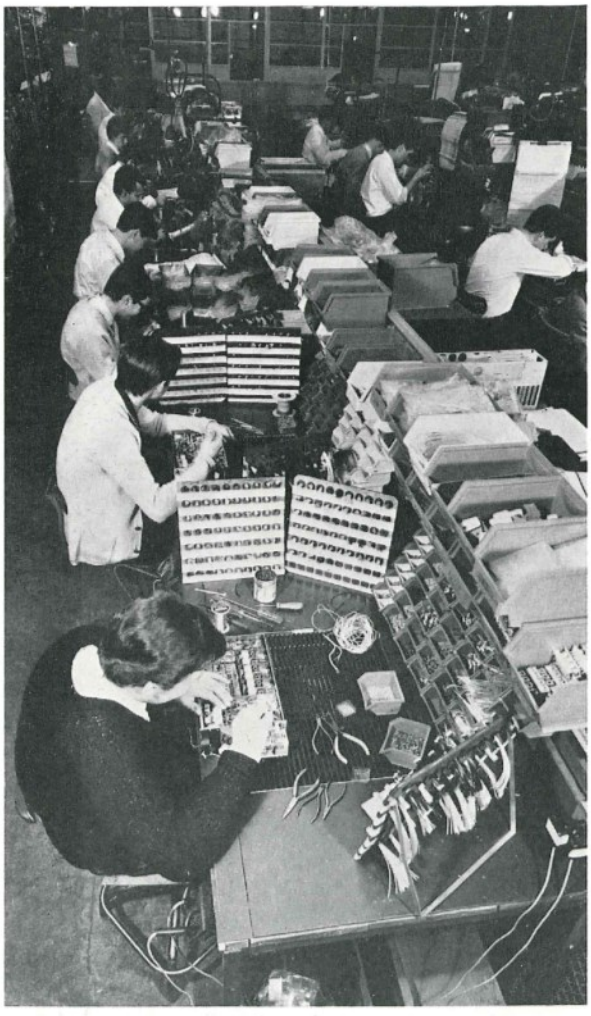
standard fit comprises dual AD160 V.H.F Communication Systems, dual AD260 VOR/ILS Navigation Systems, dual AD370 Automatic Direction Finders, the AD560 Doppler Navigation System and the AD70 Distance Measuring Equipment.

Provision has been made to accommodate an aerial system for either a second doppler or another automatic direction finder or for the test flying of new equipment.

Product Support

Aeronautical Division's product support organization provides an individual service to every operator of Marconi avionic equipment.

Field Support Group contacts the customer, on the placing of an order, to discuss his servicing needs, spare parts schedules, range of test equipment and training of personnel, which is provided free of charge at Marconi College or is carried out on the spot. When the customer receives the first aircraft, a service engineer will help to check the operating procedures and test the equipment. The evaluation of equipment under a variety of conditions is undertaken to the customer's requirements.



MANUFACTURE *Final assembly of the AD370 Automatic Direction Finder being carried out in the Basildon Works*

FLYING LABORATORY *and demonstration aircraft—the Piaggio 166 belonging to the Aeronautical Division*

Installation Group will assist the aircraft manufacturer through the fitment and flight-test stage. Acceptance procedures and test equipment recommendations are supplied and discussed with the aircraft manufacturer.

London Airport Service Depot undertakes on-the-spot repairs and overhaul work for any operator into London and for other operators via their forwarding agents. It also provides for over-the-counter hire of replacement units. It will enter into long-term maintenance agreements. The Depot also has several important secondary tasks such as finalizing maintenance methods and keeping a close watch for equipment defects.

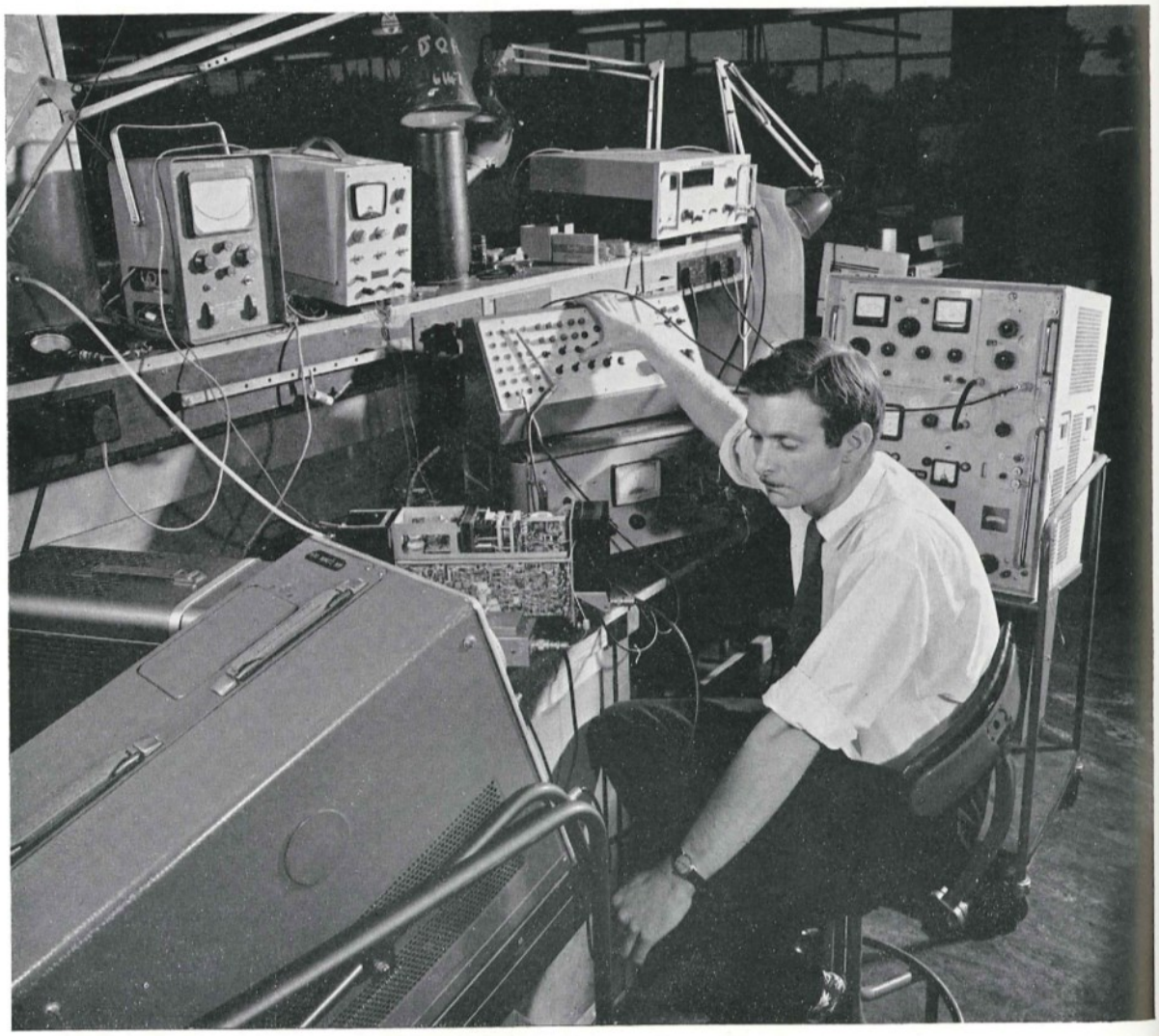
Spare Parts Service. The Aeronautical Division holds approximately £400,000 worth of spare stocks to support the £20,000,000 worth of Marconi avionic equipment in service throughout the world. Spare parts and units are available for a minimum period of ten years from the date of completion of the last quantity production order of the equipment and for as long as a demand exists thereafter. A world list price is available free of charge to all Marconi customers.

Marconi's Aeronautical Division is fully supported, as

are all Marconi Product Divisions, by the Company's comprehensive central services, some of which are described in the introductory pages of this catalogue.

Technical Documentation

The Aeronautical Division's Technical Services Group controls the issue of installation and equipment manuals produced by the Company's Central Division. It also prepares a vast amount of technical documentation such as Provisional Specifications during the early stages of development; Declaration of Design Performance for civil equipments; Radio Installation and Radio Equipment Memoranda for military equipments; Design, Descriptive and Data Manuals for both military and civil equipments; Production Test Specifications; Acceptance Specifications for the customers; Service Bulletins, giving equipment modifications and Technical Services Advice Sheets. It also prepares proposals for the fitment of avionic systems to new types of aircraft, and processes type approvals from the Air Registration Board, U.S Federal Aviation Agency and other national boards. Overhaul manuals are provided free of charge to the customers and give spare parts breakdown to ATA200 format, showing quantity of parts per 100 overhauls.



DEVELOPMENT *The Aeronautical Division's development laboratories are extensive and are staffed by experienced engineers. The picture shows development on h.f communication equipment*