

ML AVIATION

Technical Capability in Aerospace Engineering

January 1984

WW1361

PART 2

ML AVIATION COMPANY LIMITED

THE COMPANY TODAY

The Company operates on three sites as listed below:-

- ML(WW) is the headquarters of design and development sited at White Waltham Aerodrome near Maidenhead.
- ML(SL) is the headquarters of production sited with the ML Holdings Group Offices on the Slough Trading Estate.
- ML(BR) is an additional Design Office located in the centre of Bristol and established early in 1978.

Eight miles separate White Waltham and Slough, and Bristol is only a 90 minute drive along the M4 motorway.

Excluding the technical administration, over 300 employees are design or technical staff of the Engineering Division, many being Chartered Engineers qualified to at least degree or HNC standard. In the last few years successful recruitment of such staff has been achieved by opening a design office in Bristol and offering employment to aerospace engineers in an area where they are already resident. At present there are approximately 50 engineers at Bristol. The staff at the Bristol office can be doubled if the future work load justifies such expansion.

A measure of the competence of any British Company in aerospace is the extent of its Approval Registration. This is detailed on pages 6 to 8.

BOARD OF DIRECTORS

COMPANY ORGANIZATION

The adjacent chart illustrates the present matrix structure of the organization with the Engineering Division reporting through the Technical Director, the Production Division reporting through the Production Director and all other Departments reporting either directly to the Chairman and Managing Director, or to the Commercial Director.

The functional activities of all departments are illustrated on the vertical lines and the intersecting horizontal lines at the bottom of the chart indicate the line management of the various projects which draw resources from appropriate departments.

In the Engineering Division, project managers are directly responsible to the Technical Director for complete development of their projects, often carrying that responsibility through into production and interfacing with project production managers functionally responsible directly to the Production Director.

APPROVALS

DEFENCE STANDARD 05-21 (Defence Contractors List Reg No 1D1M01)

The Company is approved by the Ministry of Defence to Defence Standard 05-21 for the Design, Development, Quantity Production and Repair of mechanical, electro-mechanical and electronic products and equipment to aerospace standards including but not limited to:

- (a) Aircraft up to an all-up weight of 12,500 lb (5,670 kg).
- (b) Armament Equipment, Weapon Response Simulators, and associated Test Sets.
- (c) Aircrew Personal and Life Support Equipment.
- (d) Airfield, Aircraft and Weapon Servicing, Handling and Loading Equipment.
- (e) Air Conditioning, Cooling and Refrigeration Systems.
- (f) Inflatable Shelters.
- (g) Power Cartridges, supported by an explosives filling area and test site.
- (h) Specialized installations for research and development.
- (i) Design and development of specialized packaging, transit and storage equipment.
- (j) Modifications and special installations in aircraft.
- (k) Rotary wing and fixed wing remotely piloted vehicles.
- (l) Radio Frequency Attenuating Connectors for in-flight and ground support applications.

AvP 25 - AIRCRAFT DESIGN APPROVAL CERTIFICATE No 45/1983

The Design Organization of the Company at White Waltham and Bristol is approved, subject to the terms and conditions of AvP 25, for the Design, Development and Testing of the following classes of work under contract or sub-contract for the Procurement Executive of the Ministry of Defence:

- (a) Modification and special installation in aircraft. (Fixed wing and helicopters).
- (b) Helmets for aircrew.

APPROVALS (cont)

- (c) Integration of Aircrew Equipment Assemblies.
- (d) Nuclear, bacteriological and chemical protection equipment (NBC).
- (e) Brake parachute release units and anti-spin parachute release units.
- (f) Drogue guns for anti-spin parachutes.
- (g) Rotary wing and fixed wing remotely piloted vehicles (RPV).
- (h) Total systems aspects of captive balloon systems.
- (i) Balloon cars, winches and ancilliary equipment for captive balloon systems.

AvP 30 - AIRCRAFT DESIGN APPROVAL CERTIFICATE

The Company is approved, in accordance with the terms of AvP 30, for the Design, Development and Testing of guided weapon systems and equipment under contract or sub-contract to the Ministry of Defence (Procurement Executive). The classes of equipment to which Approval applies are as follows:

- (a) Devices for ordnance initiation, fuzing and control by inductive coupling methods, for in-flight and ground support application.
- (b) Mechanical ground handling equipment.
- (c) Ship-borne shock resistant handling and storage equipment.

EXPLOSIVES REGISTRY NO XB70/460/4

The ML Aviation cartridge filling and explosives trials facilities are registered under the Health and Safety Executive Explosives Registry No XB70/460/4.

MoD QUALITY ASSURANCE

Quality Assurance Directorates representatives from MoD(PE) are in some cases resident, and in other cases visit the Company. In the resident category are AQD (Aeronautical Quality Assurance Directorate) and DWQ(N) Directorate Weapons Quality (Naval). In the visiting category are QAD (Ord) Quality Assurance Directorate (Ordnance) and MQAD (Materials Quality Assurance Directorate).

McDONNELL DOUGLAS

Process approvals are also held from McDonnell Douglas Corporation (MDC).

The department is capable of assessing the properties of a wide range of plastic, ferrous and non-ferrous materials including defect investigations, also advising on and controlling protective treatments, and heat treatment. The various sections of this department are managed directly by the Technical Services Manager.

STRUCTURES

Head of the Structures Group is Mr A.G. Foskett CEng., MRAeS, who joined MLA in 1970 after specializing in the stress analysis of fixed and rotary wing aircraft with Fairey Aviation, Hunting Percival Aircraft and Handley Page.

The group analyses inertia and aerodynamic loading systems of all structures under development, using data derived from flight envelopes, wind tunnel trials or estimated by aerodynamicists. It carries out a complete stiffness and stress analysis, including the effects of dynamic loading, and analyses the fatigue life of structures. The group includes weights engineers responsible for mass and moment of inertia calculations and for advising on methods of weight reduction to achieve design aims.

The group is responsible for producing all type records or other strength summary data and for the preparation of design certificates giving flight approval and satisfying customer acceptance requirements for the various equipments.

TRIALS

The trials engineers, generally assigned as a team to a particular project, are responsible for all trials within the Company and at external test sites as required. They ensure that all test rigs, special fixtures and standard test equipment are made available to meet particular trials.

Mechanical testing is under the supervision of a Chief Mechanical Test Engineer. His responsibilities for both development and production testing cover:

- material testing, proof and ultimate strength tests,
- vibration tests, climatic tests
- hydraulic and pneumatic testing.

Electrical testing is carried out under the supervision of a Chief Electrical Test Engineer. His responsibilities for both development and production testing ensure that all electrical equipment meets the performance requirements given in the design specifications. Such testing may be required under vibration or variable climatic conditions.

COMMERCIAL DIVISION

This Division headed by the Commercial Director is situated at White Waltham. Its staff are highly experienced in providing pre-sales advice, processing customers' requirements and arranging appropriate after-sales product support.

SALES DEPARTMENT

The Sales staff maintain active liaison with potential and established customers. They provide specialist technical advice, deal with particular enquiries, attend initial negotiations and arrange exhibitions, presentations and demonstrations of equipment.

CONTRACTS DEPARTMENT

The Contracts Department is responsible for all aspects of tendering, including co-ordination of the Company's submissions, and final contract negotiation and acceptance.

This Department also deals with contract administration and liaison.

PRODUCT SUPPORT DEPARTMENT

The Product Support engineers provide advice on maintenance and repair policies and provide the provisioning data for spares and special tools/equipment. They maintain a close relationship with the Company's Technical Publications Department and advise on particular customer requirements and operating conditions which may need to be reflected in technical documentation.

In addition this Department conducts special training courses for representatives of customers and end-users, and handles operating queries.

SITE ADDRESSES

ML Aviation Company Limited
White Waltham Aerodrome
Maidenhead
Berkshire Tel. Littlewick Green (0628-82) 3361

ML Aviation Company Limited
ML Building
Ajax Avenue
Trading Estate
Slough
Berkshire Tel. Slough (0753) 23838

ML Aviation Company Limited
Greyfriars
Lewins Mead
Bristol Tel. Bristol (0272) 24092

APPROVALS (cont)

CAA AIR NAVIGATION ORDER APPROVAL (Ref No DAI/2210/46)

The Company is approved by the UK Civil Aviation Authority under BCAR Chapters A8-1 and A8-5, as a Group A1 Primary Company and a Group B3 Process Company to certify the design, manufacture, installation repair and inspection of:

<u>GROUP</u>	<u>CLASS</u>	<u>RATING</u>
A1 Primary Company	Airframes	Aeroplanes not exceeding 5,600 kg M.T.W.A.
	Airframe/Powerplant Components, Equipment and Systems	(a) Associated with the above aeroplanes (b) Structural, sheet metal and fibre reinforced plastics (c) Mechanical, hydraulic, pneumatic and oxygen
	Electrical Equipment and Systems	(a) Associated with the above aeroplanes (b) Mechanical and electromechanical (c) Cable looms and moulded cable looms
	Instrument Equipment and Systems	Design of installations
B3 Process Company	Process	(a) Heat treatment (b) Protective treatment

Supplementary Rating

Certification of Manuals
Control of Subcontractors