MINISTRY OF SUPPLY

D.T.D. 5080

April, 1959

Aircraft Material Specification

ALUMINIUM - MAGNESIUM - SILICON - MANGANESE ALLOY SHEETS (Mg 0.9, Si 0.9, Mn 0.7)

(Solution treated and precipitation treated) (Suitable for welding)

NOTE 1 :—This specification is one of a series issued by the Ministry of Supply, either to meet a limited requirement not covered by any existing British Standard for aircraft material or to serve as a basis for inspection of materials the properties and uses of which are not sufficiently developed to warrant submission to the British Standards Institution for standardisation.

NOTE 2 :—Sheets of this composition supplied in the annealed condition are covered by D.T.D.346A.

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1. Inspection and testing procedure

1.1 The material shall be inspected and tested in accordance with the requirements of Sections One and Nine of British Standard L.100.

2. Quality of material

2.1 The material shall be made from aluminium complying with the requirements of British Standards L.31, L.48 or L.49 and alloying constituents, with or without approved scrap, at the discretion of the manufacturer.

3. Chemical composition

3.1 The chemical composition of the material shall be as follows :—

	Per cent	
	Minimum	Maximum
Copper	—	0.10
Magnesium	0.4	1.5
Silicon	0.60	1.3
Iron	—	0.6
Manganese	0.40	1.0
Chromium	—	0.3
*Nickel	—	0.2
*Zinc	—	0.1
*Lead	—	0.05
*Tin	—	0.05
*Titanium	—	0.3
Aluminium	the remainder	

* Subject to the discretion of the Inspecting Authority, determination of these elements need be made on a small proportion only of the samples analysed.

4. Condition

4.1 Unless otherwise required and stated on the order the material shall be supplied in the solution-treated, straightened and subsequently precipitation-treated condition.

5. Heat treatment

5.1 The material shall be heat treated as follows :—

Solution treat by heating to 520° ± 10°C and quenching in water at room temperature.
Precipitation treat by heating uniformly at 180° ± 10°C for 3 to 12 hours.

6 Mechanical properties

6.1 The mechanical properties obtained from test pieces selected and prepared as stated in the appropriate clauses of British Standard L.100 shall be as specified below.

6.2 *Tensile test*

0.1 per cent proof stress (material thicker than 25 SWG only)	not less than 16.0 tons per sq. in.
Tensile strength	not less than 19.0 tons per sq. in.
Elongation	not less than 8 per cent.

6.3 *Bend test*

Angle of bend	180°
Radius of former	three times the nominal thickness of the material.

Approved for issue,

H. SUTTON,

Director of Materials Research and Development (Air)

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