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AP 101B-1801-16

AL 4 February 1975

GNAT T. MK. 1 AIRCRAFT

(1 x ORPHEUS 101 ENGINE)

OPERATING DATA MANUAL

BY COMMAND OF THE DEFENCE COUNCIL

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Ministry of Defence

Sponsored for use in the ROYAL AIR FORCE by DFS (RAF)

Publications Authority P.P. An.4 Procurement Executive, Ministry of Defence

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NOTE TO USERS

This information is subject to the limitations and restrictions on aircraft and engine speeds and on all-up-weight given in Pilot's Notes and must be used in conjunction with these.

IMPORTANT

comments, queries and any questions on the information contained in this Publication should be addressed directly to:—

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AMENDMENT RECORD SHEET

Amendment lists will be issued as necessary and should be inserted in the appropriate places. The incorporation of an amendment list should be indicated below:-

Amendment List		Amended by	Date
No.	Date		
1	May 1970	S.J. Curran	17.9.70
2	Dec. 1971	S.J. Curran	24.2.72
3	March 1973	S.J. Curran	11.5.73
4	Feb. 1975	S.J. Curran	10.6.75
5	Oct 1975	S.J. Curran	13.10.75

Amendment List		Amended by	Date
No.	Date		

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A.P.101B-1801-16
Gnat T Mk.1 (1 x Orpheus 101)

INTRODUCTION

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1.1 General

The performance information in this publication applies to the Gnat T Mk.1 aircraft with one Orpheus 101 engine. The information is based on flight trials, its applicability to a particular aircraft is subject to the normal manufacturing tolerances of aircraft and engine.

All the information is based upon International Standard Atmosphere (I.S.A.) conditions except where otherwise shown. Fuel is to be AVTUR at a specific gravity of 0.80, although in practice the specific gravity may vary between approximately 0.77 to 0.81.

1.2 Aircraft Configuration

The charts are shown for three aircraft conditions:—

- (a) Clean wing.
- (b) Underwing slipper tanks fitted but empty at start-up.
- (c) Underwing slipper tanks fitted and full at start-up.

In each case it is assumed that the aircraft's internal tanks are full at start-up.

Each performance chart is marked with the aircraft condition if this affects the particular performance item.

TABLE 1.1 PERFORMANCE NOTATION AND RELATIONSHIPS

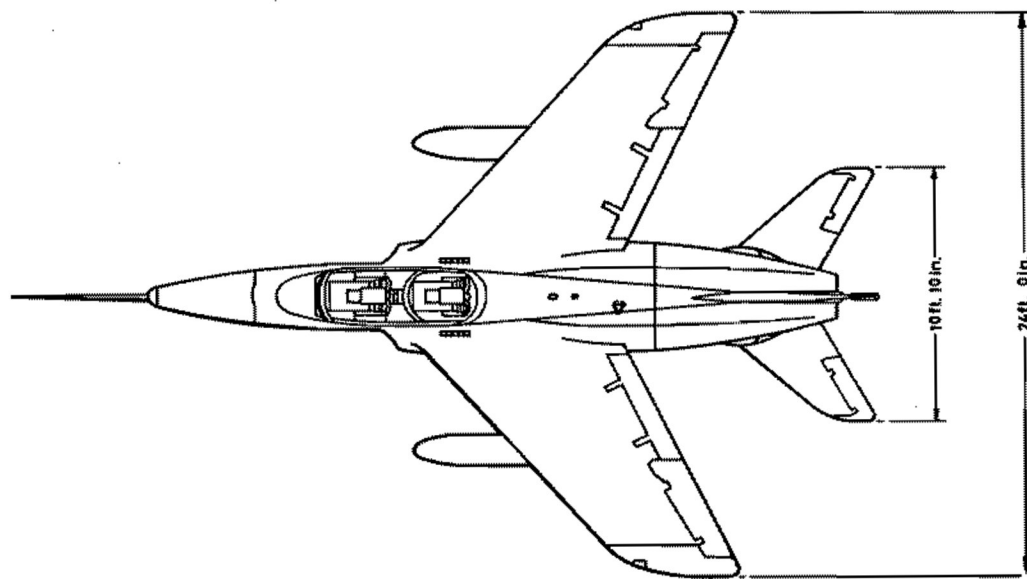
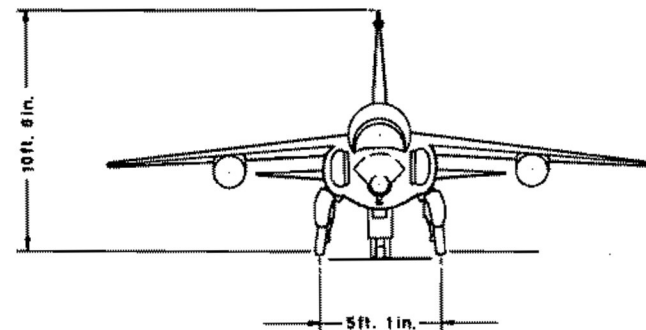
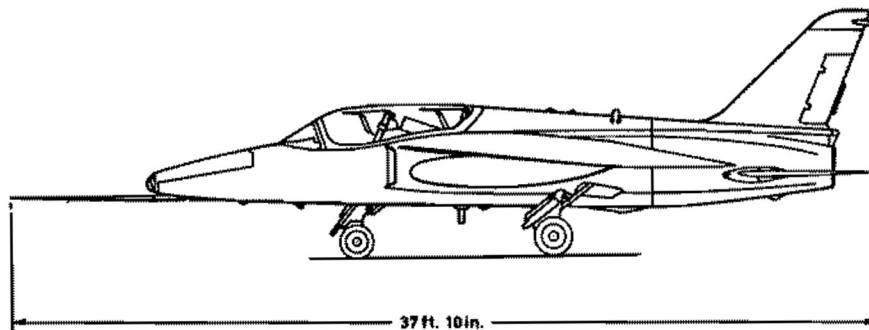
(a) Performance Notation

A.S.I.	Airspeed Indicator
A.S.I.R	Airspeed Indicator Reading
E.A.S.	Equivalent Air Speed
I.A.S.	Indicated Air Speed
I.M.N.	Indicated Mach Number
I.S.A.	International Standard Atmosphere
O.A.T.	Outside Air Temperature ($^{\circ}$ C).
P.E.C.	Pressure Error Correction
R.A.S.	Rectified Air Speed
T.A.S.	True Air Speed
T.M.N.	True Mach Number
T.P.A.	True Pressure Altitude
σ	Relative Air Density

(b) Some Relationships in Air Speeds

A.S.I.R. + Instrument Error Correction = I.A.S.	
I.A.S. + P.E.C.	= R.A.S. (Obtained from Part 1 of this publication).
R.A.S. + Compressibility Correction	= E.A.S. (Performed (by direct (Reckoning
E.A.S. $\div \sqrt{\sigma}$	= T.A.S. (Computer (which (converts (R.A.S. to (T.A.S.

FIGURE 1.1. GENERAL ARRANGEMENT



AIRCRAFT DATA

2. TAILPLANE

Area (gross)	37.10 sq. ft.
Sweepback at $\frac{1}{4}$ chord	46 deg.
Elevator area aft of hingeline (two elevators)	8.60 sq. ft.

1. WING

Area (gross)	175 sq. ft.
Mean chord	7.3 ft.
Aspect Ratio	3.29
Sweepback at $\frac{1}{4}$ chord	40 deg.
Incidence	0 deg.
Dihedral	-5 deg.
Aileron area aft of hinge line (two ailerons)	10 sq. ft.
Flap area (total)	14.70 sq. ft.

3. FIN

Area (exposed)	20.7 sq. ft.
Sweepback at $\frac{1}{4}$ chord	45 deg.
Rudder area aft of hinge line	3.00 sq. ft.



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