Chapter 3 LOADING AND C.G. DATA

(Completely revised)

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

General

1. It is essential that the loading of an aircraft be kept within the limitations of the approved C.G. range and the all-up weight. So far as the C.G. range of this aircraft is concerned only the fore-and-aft location of the C.G. need be calculated. To determine the C.G. position the aircraft is considered standing with the fuselage datum line horizontal and the undercarriage down. Reference should be made to A.P.4747A, for general information on aircraft loading.

Datum point

2. This is the foremost face of a spigot hole situated in the wheel bay on the fuselage skin just forward of the undercarriage door hydraulic jack. This fixed point is located 19 inches aft of the main spar frame and 4 inches below the fuselage datum.

Weight limitations

3. (1) *Clean.* The maximum permissible all-up weight of the clean aircraft for take-off and all forms of flying is 18 400 lb.

(2) *With external stores.* When carrying external stores, the maximum permissible all-up weight of the aircraft for take-off and all forms of flying is 25 000 lb.

(3) *Landing.* The maximum permissible landing weight of the aircraft (except in an emergency) is 18 500 lb.

Note . . .
Pilots are warned to exercise particular care when landing at this weight on rough or semi-prepared airfields, or in other conditions likely to create high undercarriage loads.

C.G. Range

4. The approved limits of C.G. travel, measured parallel to the fuselage datum are 0 inches to 14·5 inches aft of the C.G. datum point, as illustrated on Fig. 1.

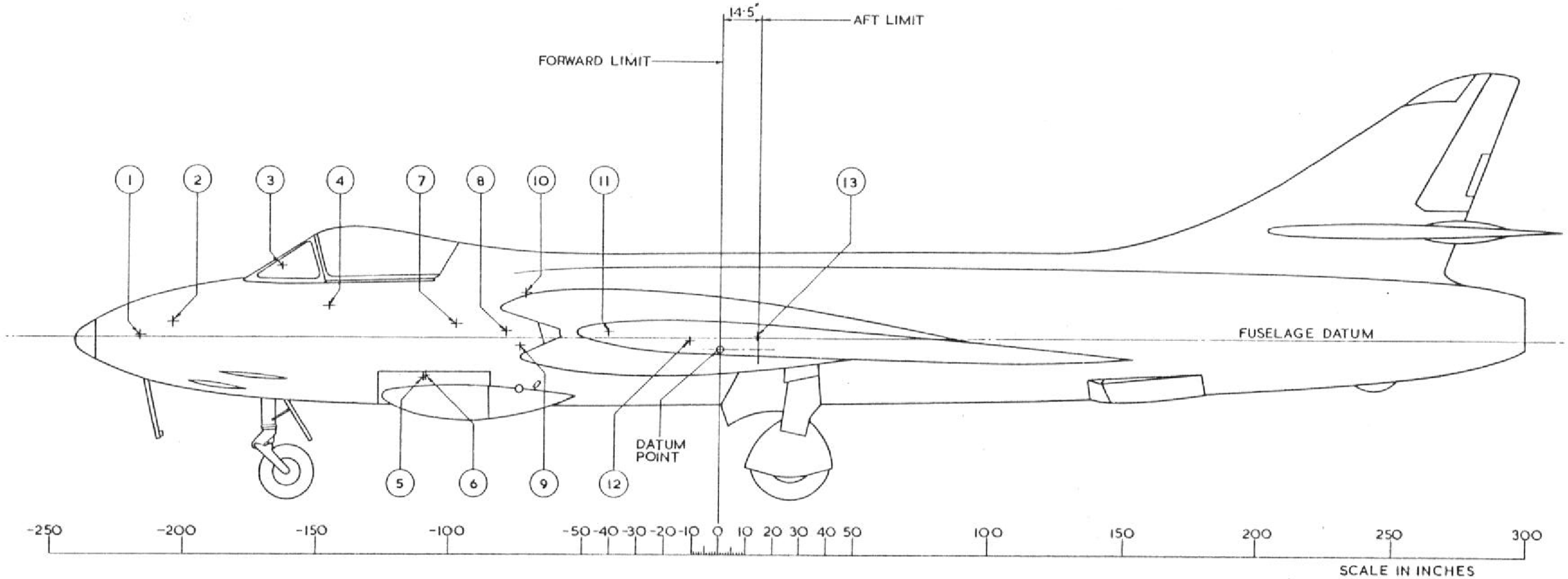

FIG. 1 LOADING AND C.G. DIAGRAM

TABLE 1
Items comprising normal load

Item No.	Description	Weight (lb.)	Arm (in.)	Moment (lb. in.) −	Moment (lb. in.) +
4	Pilot	180	−145·92	26 226	
6*	Guns and accessories	825	−110·37	91 055	
7	Ammunition	582	−98·75	57 473	
3	Gunsight	9	−162·60	1 463	
2	Camera gun G.45 and recorder	8	−205·48	1 644	
8	Radio compass unit	36	−80·00	2 880	
9	Radio, V.H.F., A.R.I. 5490	54	−73·44	4 515	
10	Radar, I.F.F., A.R.I. 5131A	37	−72·24	2 673	
1	Radar ranging, A.R.I. 5820	76	−216·00	16 416	
5†	Miscellaneous	16	−111·76	1 788	
11	Fuel, front tanks ....gal. at 7·7 lb. per gal.		−40·5		
13	Fuel, centre tanks ....gal. at 7·7 lb. per gal.		13·30		
12	Fuel, wing tanks ....gal. at 7·7 lb. per gal.		−11·50		
	AIRCRAFT AT TARE WEIGHT 11 920			289 827	

(These are typical figures and should only be used if the Aircraft Servicing Form, Civil Form 2, is out of date or inaccurate).

*Item 6 includes Mk. 4 30 mm. Aden guns complete with Mk. 2 barrels, firing units and cocking unit, feed necks, link chutes, case chute extensions, link collector tanks (Mod. 302) and the removable portion of the rear gun mountings.

†Item 5 includes spare starter cartridges, clock, crowbar, de-icing fluid and aircraft destructor.

Operational notes

5. The following notes are inserted to give guidance on particular items of loading peculiar to the type :—

(1) In order to maintain the C.G. position between the given approved limits, it is essential that ballast is fitted if the following item of equipment is not carried :—

(*a*) When the radar head and ranging unit are removed, fit ballast Ref. No. 26FX/100021 (Mod. 21).

(2) When external link collectors (Mod. 302) are fitted the weight of 540 retained links is 67·5 lb., with a load arm of −98·75 in. (Moment −6 666 lb. in.). In all C.G. calculations which allow for the expenditure of ammunition, the effect of these retained links must be included

MODIFICATIONS INCLUDED IN GIVEN TARE WEIGHT

6. The typical tare weight and moment given in Table 1 include the following modifications :—

Airframe Mods. :— Hunter 4/Y1. Plus :—

13, 63, 64, 74, 77, 79, 85, 101, 106, 109, 115, 132, 133, 135, 136, 141, 143, 149, 153, 159, 167, 173, 175, 179, 180, 182, 183, 185, 187, 188, 192, 194, 195, 196, 201, 203, 204, 205, 206, 208, 209, 210, 213, 214, 215, 216, 217, 223, 235, 239, 240, 242, 248, 249, 250, 251, 258, 259, 262, 265, 266, 268, 269, 273, 274, 276, 278, 283, 289, 290, 291, 292, 295, 296, 297, 301, 302, 303, 305, 306, 307, 308, 313, 317, 318, 321, 322, 324, 328, 329, 331, 332, 336, 345, 347, 352, 354, 355, 357, 360, 363, 365, 369, 373, 380, 381, 396, 398, 403, 404, 413, 423, 434, 435, 437, 444, 450, 451, 452, 458, 462, 478, 482, 484, 498, 506, 508, 631, 705, 708, 717, 719, 725, 763, 768, 827, 846, 990, 991, 996, 1004, 1013, 1021, 1031, 1053, 1054, 1057, 1063, 1077, 1129, 1133, 1142, 1145, 1155, 1169, 1189, 2360.