

FN1A18/734

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15th Part of Report No. A. & A. E. E. /783.

30 SEP 1942

AEROPLANE AND AIRCRAFT EXPERIMENTAL ESTABLISHMENT

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DATE BOSCOMBE DOWN. 12
 5/1/53
 Kittyhawk I. A.L. 229.
 (A.L. 229 - 1710-F3R)
 Weight and loading data.
 12 DATE 6.1.53

This report deals with the aircraft (or equipment) as tested. Action to remedy defects or decisions to accept items not in strict compliance with the specification are matters for decision and action by the Ministry of Aircraft Production.

A. & A. E. E. Ref:- 4481/1
 M. A. P. Ref:- R. A. 1871/D. A. N. A. 1.

Progress of issue of report

Report No.	Title
10th Part of A. & A. E. E. /783.	A. L. 229 - Performance tests with an external fuel tank fitted.
11th do.	A. L. 229 - Take-off and handing trials with and without overload fuel tank.
12th do.	A. K. 572 & A. L. 229 - Engine cooling trials.
13th do.	A. L. 229 - Gun heating tests.
14th do.	A. L. 229 - Level speed measurements with flame damping exhausts fitted.

1. Introduction.

The results of weighing and centre of gravity determination, loading and centre of gravity range due to dissipation of load form the subject of this report.

The aeroplane was equipped with 6 x 0.5" guns in the wings as compared with 4 x 0.5" guns fitted in Kittyhawk I. A. K. 572 (see 5th Part of report A. & A. E. E. /783).

2. Weight Summary.

Load	A	B	C	D
'Tare' weight	6098	6098	6098	6098
Service load	1358	1415	1420	1395
Fuel 123 gals. @ 7.2 lb/gall.	886	886	886	1196 (overload fuel)
Oil 17.5 " " 9.0 "	158	158	158	158
Flying Weights	<u>8500</u>	<u>8557</u>	<u>8562</u>	<u>8847</u> lb.

3. Maximum Capacity of tanks.

(Front wing tank	29 gallons.	
(Rear " "	42 "	
Fuel (Fuselage " "	52 "	Oil 17.5 gallons
(Total	123	
(Overload tank.	43	
(Total overload	166 gallons	

4. Centre of gravity range.

4.1. The centre of gravity with the loads in para. 2. measured parallel to the datum line and relative to the datum point (See fig. I 5th part of report A. & A. E. E. /783) are.

Load "A" Normal.	26.5" aft
" " "B" Alternative W/T.	26.5" "
" " "C" Desert Fighters.	26.5" "
" " "D" Long Range	26.2" "

4.2. The centre of gravity range due to dissipation of load is from 20.9" aft to 26.5" aft. The aft limit is obtained when loaded to either "A", "B" or "C" loads and the forward limit when loaded to the "A" load, but with ammunition expended and fuel reduced to a supply sufficient for a half hours running of the engine at maximum power permissible at ground level.

4.3. The basic aft limit is extended by 1% of the mean chord, i.e. 0.8" for purposes of test and becomes 27.3" aft.

4.4. A more forward centre of gravity position of 17.1" aft may be obtained when the aeroplane is in a light loaded condition of 'Tare' weight plus a light pilot of 170 lb. and fuel reduced as in para. 4.2.

4.5. All c.g. positions are quoted undercarriage down. The moment effect due to retraction is 11,708 in/lb. and moves the c.g. aft by 1.2" at maximum load.

Loading details.

In Appendix I the various loads have been applied in detail to the "Tare" weight quoted in para. 2.

Circulation List

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E. J. Jones.
Chief Technical Officer.

M. J. ...
Air Commodore,
Commanding A. & A. E. E.,
Royal Air Force.

APPENDIX I.

- 3 -
LOADING DETAILS

Tare	Day and Night Fighter			Alternative Radio			Desert Fighter			Long Range		
	6098		96122	6098		96122	6098		96122	6098		96122
1 Camera G.45	10	23.0	230	10	23.0	230	10	23.0	230	-	-	-
2 Gunsight	4	36.0	144	4	36.0	144	4	36.0	144	4	36.0	144
3 Belly Fuel Tank and Support.	-	-	-	-	-	-	-	-	-	54	23.0	1242
4 .5 Ammunition 1686 rounds	505	41.5	20957	505	41.5	20957	505	41.5	20957	505	41.5	20957
5 4-.5 Guns, Blast tubes etc. -6	463	42.0	19446	463	42.0	19446	463	42.0	19446	463	42.0	19446
6 Ammunition boxes and chutes.	54	41.5	2241	54	41.5	2241	54	41.5	2241	54	41.5	2241
7 Pilot and Chute	200	60.0	12000	200	60.0	12000	200	60.0	12000	200	60.0	12000
8 R.3003 Wireless.	29	122.0	3538	29	122.0	3538	29	122.0	3538	-	-	-
9 R.3003 Controls and accessories.	5	35.0	175	5	35.0	175	5	35.0	175	-	-	-
10 Oxygen cylinders.	29	121.0	3509	29	121.0	3509	29	121.0	3509	29	121.0	3509
11 First Aid	3	142.0	426	3	142.0	426	3	142.0	426	3	142.0	426
Duffle Bag.	-	-	-	-	-	-	4	140.0	560	4	140.0	560
12 Desert Equipment	-	-	-	-	-	-	23	140.0	3220	23	140.0	3220
T.R. 90 Wireless	37	160.0	5920	-	-	-	37	160.0	5920	37	160.0	5920
" Controls and accessories	16	147.0	2352	-	-	-	16	147.0	2352	16	147.0	2352
13 T.R. 1133 Wireless	-	-	-	43	160.0	6880	-	-	-	-	-	-
" Controls and accessories	-	-	-	32	162.0	5184	-	-	-	-	-	-
14 Cartridge Signals	3	147.0	441	3	147.0	441	3	147.0	441	3	147.0	441
15 Ballast weights (17.5 lb. each)	-	-	-	35	-54.0	-1890	35	-54.0	-1890	-	-	-
Total Removable Load	1358			1415			1420			1395		
16 Fuel. Front wing tank 29 gal.	209	27.0	5643	209	27.0	5643	209	27.0	5643	209	27.0	5643
17 " Rear " " 42 "	303	52.0	15756	303	52.0	15756	303	52.0	15756	303	52.0	15756
18 " Fuselage " 52 "	374	95.0	35625	374	95.0	35625	374	95.0	35625	374	95.0	35625
19 " Belly tank 43 "	-	-	-	-	-	-	-	-	-	310	21.6	6696
20 Oil 17.5 gal.	158		316	158		316	158		316	158		316
Total All up weight	8500		224841	8557		226743	8562		226731	8847		232204
C.G. Position U/C down.		26.5"			26.5"			26.5"			26.2"	
C.G. Position U/C Up.		27.8			27.8			27.8			27.5	