

*Express Bill  
8/10  
Checked 21. 10/10*

ENCLOSURE 1A.

AIR FORCE HEAD-QUARTERS.      KITTYHAWK INSTRUCTION No.1.  
TECHNICAL ORDER.

LIMITATIONS TO BE OBSERVED DURING FLYING.

The following limitations are to be observed during all conditions of use:-

- lc.* (a) WEIGHTS -
- |                             |   |           |
|-----------------------------|---|-----------|
| Normal Maximum weight for   | > |           |
| (All forms of flying.       | = | 8,000 lb. |
| Maximum weight for straight | > |           |
| (Flying.                    | = | 8,845 lb. |
| Tare weight.                | = | 5,982 lb. |
- lc.* (b) FUEL AND OIL -
- |                       |   |                   |
|-----------------------|---|-------------------|
| Maximum fuel capacity | > |                   |
| (incl. Belly tank).   |   |                   |
| (Octane No. 100).     | = | 159 gals.         |
| Fuel Pressure.        | = | 14-16 lb/sq. in.  |
| Maximum oil capacity. | = | 15 gals.          |
| Oil pressure.         | = | 60-70 lb./sq. in. |
- lc.* (c) ENGINE (ALLISON V1710, 36)  
*39)*
- R.P.M. -
- |                               |   |              |
|-------------------------------|---|--------------|
| Maximum in "dive"             | = | 3,120 R.P.M. |
| Maximum in "take off"         | = | 2900 R.P.M.  |
| Maximum other than "take off" | = | 2600 R.P.M.  |
| Military rated                | = | 3,000 R.P.M. |
- POWER -
- |                               |   |            |
|-------------------------------|---|------------|
| Rated horse power (15000')    |   |            |
| at 2800 R.P.M. 38.7 in. M.P.  | = | 1,000 H.P. |
| Military Rating horse power   | = | 1,150 H.P. |
| Cruising horse power          |   |            |
| (recommended) 2280 R.P.M. @   |   |            |
| 28.9 in. M.P. @ 15000'        |   | 670 H.P.   |
| Take off 2800 R.P.M. 46.2 in. |   |            |
| M.P. at S.L.                  | = | 1150 H.P.  |
- (d) SPEED (I.A.S.) -  
MAXIMUM PERMISSIBLE -
- |                     |   |            |
|---------------------|---|------------|
| Without belly tank. | = | 485 M.P.H. |
| With belly tank.    | = | 285 M.P.H. |
- STALLING -
- |                              |   |           |
|------------------------------|---|-----------|
| Flaps and Undercarriage up   | = | 86 M.P.H. |
| Flaps and Undercarriage down | = | 81 M.P.H. |
- At stall one wing drops sharply.
- CLIMBING -
- |                            |   |            |
|----------------------------|---|------------|
| Recommended 2800 R.P.M. at |   |            |
| 37.2 ins. M.P.             | = | 145 M.P.H. |

4.  
SPEED. CONTD.

FLAPS -

Maximum speed at which flaps  
are to be raised and lowered. = 140 M.P.H.

LANDING GEAR -

Maximum speed at which landing  
gear and radiator shutters may  
be operated. = 175 M.P.H.

AEROBATICS -

The following aerobatics are prohibited:-

- (1) (a) Outside loop.
- (1) (b) Inverted flying (continuous).
- (1) (c) Snap rolls at speed in excess of 180 M.P.H. (I.A.S.).
- (1) (d) Slow rolls at speed in excess of 310 M.P.H. (I.A.S.).
- (1) (e) Aerobatics with belly tank *filled.*
- (1) (f) Spins.

(2) TAKE OFF AND LANDING -

Take Off- With military power and 30° flaps, speed 93 M.P.H.,  
ground run 1125 ft., distance to clear 50 ft.,  
obstacle 1650 ft.

Landing- With flaps full down, speed - 85 m.p.h., ground run  
800 ft; distance to stop over 50 ft., obstacle  
1500 ft. *These operations exclude use of  
belly tank.*

(3) MISCELLANEOUS -

Coolant temperature range is 85-110°C.

References:- File: R.A.A.F. 4/22/4, 1004/1004 Allison Inst. No 2  
Hobby Hawk. No 2.

Date of Issue:- April, 1942

*F.G.L.  
1/2/42*

KITTYHAWK INSTRUCTION NO. 1.

(Issue 2.)

APPENDIX I.

LIMITATIONS TO BE OBSERVED DURING FLYING.  
(P40E AND B1 AIRCRAFT).

The following limitations are to be observed during all conditions of use of the Kittyhawk (P40E and B1) aircraft:-

(a) Weights.

Tare weight = 6220 lbs.  
The maximum permissible weight for all forms of flying = 8500 lbs.  
The maximum permissible weight for straight flying and gentle turns = 9500 lbs.

(b) C.G. data.

The datum plane of this aircraft is located 1.25 inches forward of a mark on the leading edge of the wing root chord.

The maximum permissible forward limit of the C.G. is 19.4 inches aft of the datum.

In percent M.A.C. = 21.0%

The maximum permissible aft limit of the C.G. is 28.1 inches aft of the datum.

In percent M.A.C. = 31.7%.

(c) Fuel.

The fuel must be used in the following order:-

- (i) Take off on fuselage tank.
- (ii) Change to belly tank (if carried).
- (iii) Fuselage tank.
- (iv) Main tank (Rear wing).
- (v) Reserve wing tank (Front wing).

(d) Speeds I.A.S.

<u>Maximum permissible</u>	<u>m.p.h.</u>
In dive	485
	280 (belly tank on).
For lowering undercarriage	170
For lowering flaps	140

(e) Aerobatics.

The following aerobatics are prohibited:-

- (i) Spine.
- (ii) Outside loops.
- (iii) Inverted flying.
- (iv) Snap rolls in excess of 140 m.p.h. (I.A.S.)
- (v) Slow rolls in excess of 285 m.p.h. (I.A.S.)
- (vi) Aerobatics with belly tank on.

APPENDIX III.

KITTYHAWK INSTRUCTION NO.1  
(Issue 3)

LIMITATIONS TO BE OBSERVED DURING FLYING THE KITTYHAWK (ALL  
MODELS) AIRCRAFT (PRACTICE SPINNING CONDITION)

The following limitations are to be observed when flying the Kittyhawk aircraft during practice spinning :-

- (a) (i) Belly tank should not be carried.
- (ii) Bombs should not be carried.
- (iii) Aircraft should have reached a height of 10,000 feet.
- (iv) Centre of gravity should not be further aft than 29% M.A.C.

Note. - In the case of Kittyhawk (Models P4OE and P4OE1) aircraft, practice spinning is not permitted until 30 gallons of fuel have been consumed from the fuselage tank.

- (v) Recovery should be initiated before two turns are completed.
- (b) The standard method of recovery should be used, with the following qualifications :-
- (i) Opposite rudder must be applied before the stick is moved.
  - (ii) Stick should not be moved further forward than central position.
  - (iii) Stick should be kept laterally central.
  - (iv) A speed of 180 m.p.h. (I.A.S.) should be attained before starting to ease out of the resultant dive.

ENC 47A

DEFENCE  
9/42/9  
A.A.F.

A.8 902

16 JAN 1944

No.2 Operational Training Unit,  
R.A.A.F.,  
MILDURA, Vic.  
(Copy to No.1 (Training) Group.)

The following signal has been received from WASHINGTON:

"P40 AIRPLANES. CONTENTS OF CABLE RECEIVED BY BAC FROM ENGLAND.  
'RAF INST. KITTELAWK. PRACTICE SPINNING PERMITTED PROVIDED BELLY TANK OR BOMB IS NOT CARRIED AND THE CG IS NOT FURTHER AFT THAN 29 PERCENT OF MEAN CHORD. SPINNING IS NOT TO BE STARTED BELOW 10,000 FEET. RECOVERY IS TO BE INITIATED BEFORE TWO TURNS ARE COMPLETED. STANDARD METHOD OF RECOVERY SHOULD BE USED WITH FOLLOWING QUALIFICATION.  
(A) OPPOSITE RUDDER MUST BE APPLIED BEFORE THE STICK IS MOVED  
(B) STICK SHOULD NOT BE MOVED FURTHER FORWARD THAN CENTRAL  
(C) STICK SHOULD BE KEPT LATERALLY CENTRAL  
(D) SPEED OF 180 MPH IAS SHOULD BE ATTAINED BEFORE STARTING TO RISE OUT OF RESULTANT DIVE. SUGGEST YOU ISSUE ABOVE INSTRUCTIONS TOGETHER WITH LOADING DETAILS AS NECESSARY TO ENSURE THAT CG IS NOT FURTHER AFT THAN 29% MAC FOR SPINNING."

BAC ADVISE ALL PROVISIONAL PILOT'S NOTES COVERING THIS AIRCRAFT HAVE BEEN ISSUED AND AMENDMENTS TO PILOT'S NOTES WILL BE NECESSARY FOR INFORMATION."

2. The awaited sheet summary of Kittyhawks is at present being checked to ascertain that the centre of gravity is not further aft than 29% of the mean chord for all normal conditions of loading and fuelling.

3. The signal, however, has been forwarded in view of the unorthodox methods quoted for recovery.

*W/04*  
for Group Captain, D.T.  
for AIR MEMBER FOR PERSONNEL.

*Enclosure 57A*

MMCN

17 FEB. 1944

DE  
RAAP. 9/42/9 S.A.S 2287

No. 2 Operational Training Unit,  
R.A.A.F.,  
MILDURA, Vic.  
(Copy to No. 1 ( Training) Group)

Further to this Head-Quarters letter S.A.S.902 dated 16th January, 1944, a check of the C.G. position for Kittyhawk aircraft under conditions of normal loading has been made with the following results:-

- (a) In the case of P40K, M and N, the C.G. is not further aft than 29% of the M.A.C. under any condition, and
- (b) In the case of the P40E, the C.G. is further aft than 29% of the M.A.C. until 30 gallons of fuel have been used.

2. The above information and also that contained in S.A.S.902 will be promulgated at an early date as an amendment to Kittyhawk Instruction No.1 - "Limitations to be observed in Flying".

*for* *ae* *16/64*  
Group Captain, D.T.  
for AIR MEMBER FOR PERSONNEL