Sgt. G. P. Hitchcock.

Form 619.

AIRMANSHIP

ROYAL AIR FORCE.

Small Notebook for use in Schools.

T. 4154. Wt. IIIII. 2/39.

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Parachute.

Daily Inspection.

1. Undo flap, see that scarlet safety chute is intact.
2. See that two locking pins are not bent.
3. Inspect pack cover (look for oil or acid stains).
4. Examine straps of harness & see that all stitching is intact.
5. Inspect release box for correct movement.
6. See that snap hooks work freely & that springs are not weak.

Training Main (28 ft.) on chest, Training Reserve (22 ft) on back.

Ordinary Service type 24 ft.

Rate of descent - 21 ft per sec. Time of opening 1½ secs. With large Training Main rate of fall 19 ft. per sec.

Tested with 400 lb. weight, 1000 ft. 150 mph.

1. Getting clear of a aircraft
2. Releasing of chute.
3. Controlling chute in descent.
4. Alighting.

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(1) Getting Clear.

(a) On a normal field. Remove articles attached to body. Slip over side head first. When clear of obstructions & full risk cord (Don't let tail plane).

(b) Steep Dive. Intensity to climb forward. : place feet against instrument panel before releasing harness. Slide over side head first.

(c) Spin. Dive out over the side towards axis of spin (left hand spin, left side).
In an inverted spin you would be flung out.

(2) Give rip cord hard jerk. Fold arms across chest. Look up to see if rigging lines are crossed. If so, cross hands above head, grasp each strap & pull.

(3) Control in Descent: To stop swinging grab strap on higher side of swing. Or can pull down on both straps.
To avoid drifting can change pace of descent by sideslipping. To slip to right, pull on right strap (rate of descent greater).
Endeavour to turn so as to face down wind (by pulling on straps).

(4) Alighting. Adopt a sitting position (muscles relaxed). Grasp suspension straps with both hands, arms extended. As soon as touch ground pull down on straps. Roll over in loose condition. Quickly release 'chute harness. If in a strong wind may be dragged along ground, so last 100 feet turn harness release box to underhand position.
If on water, instead of adopting sitting position have body straight, legs together. Hold one hand firmly on patella, release harness as soon as touch water.

Order for leaving Aircraft.

Captain gives order, passed down verbally. Gunner in turret leaves first. Wireless Operator next. Navigator next the Captain.

Low Flying.

Bad Visibility.

① Low but safe speed (flaps about 20°).
② Undercast up or down depending on type of country.
③ Keep a good lookout both sides.

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(4) Hand on throttle (open up to turn aircraft)
(5) Take note of drift.
(6) Eff. Ground speed down wind (over-estimated Air speed)
Maintain constant air-speed
(7) Carry out precautionary landing if necessary.

Circuits of Aerodromes. (I.P. 36, 38, 3940)

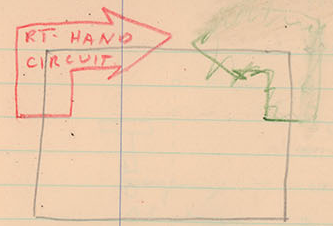
Cockpit Drill.

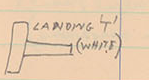
1. Petrol
2. Brakes (set/rain).
3. Flaps.
4. Flying Controls.

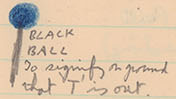
Isothermal Law.

$$H = 62{\cdot}580 \log_{10} \frac{P_o}{P}$$

H = Height (1000's of feet).
P_o = Ground pressure (approx 1013 millibars).
P = Pressure at H

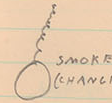






Gas but can land.
Mark to windward
side of wind.

Gobattock in progress.



(air raid warning).

Yellow Ground.
(Sorry boys).

(white).
Dive
bombing

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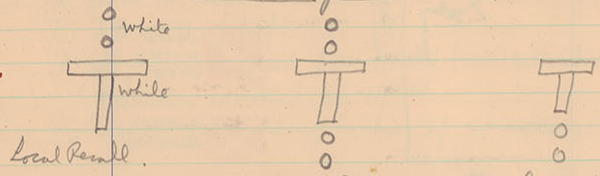
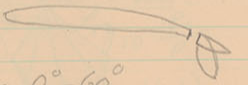
Recall Signals.



Camber Flaps.

To attain steeper approach angle & slower speed with a lower stalling speed.

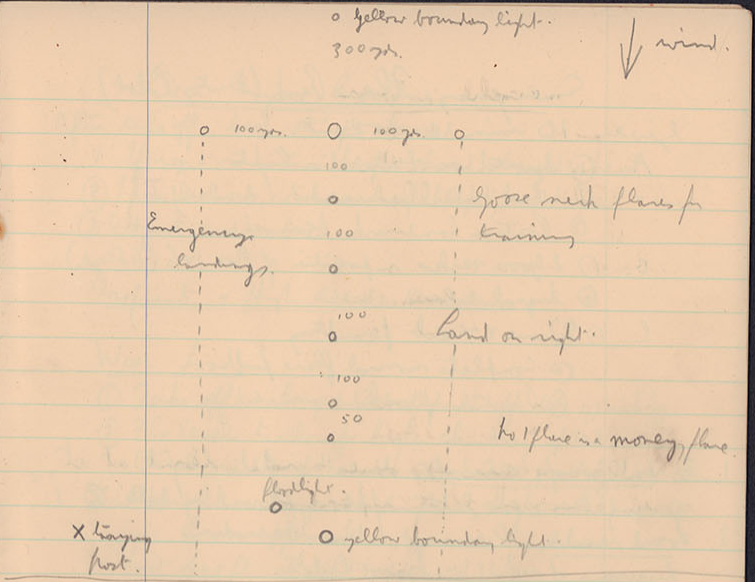


Useful range 0°-60°.

Split Flap.

Used for landing only (except Battle).

0°-60°



Port & Stbd.	110°	3 miles.
Tail.	140°	5 miles.

Acknowledge red (negative) signal by moving T.

Pilot lights 1000 yards ahead for guidance in take off.
Recall: succession of white lights or rockets.

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Emergency Flare Path (Duty Pilot).

Given 10 minutes to do it:

A ① Switch on obstruction lights.
② Wheel out illuminated Landing "T"
③ Position landmark beacon.

B. ① 2 Goose necks in position of Nos. 1 & 6 (450 yds).
② Signal to land.

C. ① When visibility permitting
ⓐ Complete normal flare path
ⓑ Position floodlight & switch on

1. To recall single aircraft, direct white light at it, giving his code letter if known, followed by letter "L".
2. Local recall, all aircraft return to aerodrome. Succession of white or orange light.
3. General recall. Proceed to nearest aerodrome. Succession of orange/white lights changing to green.
4. General recall, own aerodrome. Orange or white/red alternately with R & W changing to green.

One Engine Procedure.

After take off, keep straight ahead.
1. If won't maintain height, land straight ahead.
② If will climb, continue to safe height, make circuit & land.
③ Adjust rudder trim.

Tropical & High altitude aerodrome.

War load.

① Take off - longer. Don't pull off too quickly.
② Fly level to allow for higher climbing speed. Climb on straight course until 2000 feet. Gentle turns.
③ Approach - longer landing run, higher still speed. ∴ Power approach. Last 400 ft. straight approach.

High Altitude Flying & Oxygen.

Above 16000 ft. need oxygen.

1. Health. Keep ear-drums clear by swallowing etc.
Clothing - Warm
On descent keep engine warm.
Anti-glare glasses.
2. Aircraft. Allow for instrument Error.
Higher still speed, greater loading, loss of engine power

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Oxygen – Wicket. (Chap IV para 77 on AP129).

① Box breathing action.
2. Sluggish heart beat.
3. Mental faculties (drowsy)

Oxygen – Wilt.

1. Breathing free
2. Physical + mental alertness.
3. Warmth.

maintains service efficiency of pilot.

Flight Testing aircraft:

① Ground tests.

Engine installation + controls. } F700. See that
Inspect aircraft controls. } A/C is put 'S'.
Test flying controls.

Run engines up as normal (R.P.M, boost, mixture).
Check oil temp + press.

② Air tests.

Climb to suitable height. Carry out tests.
Normal speed. St. + lev. flight. (trimming gear)
Climb. Turns.
Ancillary controls.
Test engine full out. (note R.P.M. boost, oil temp + press)
Test at max. cruising boost.
Aerobat if affirmable.

Formation Flying.

Primary Objects.

1. Obtain concentration of power for offensive or defensive action.
2. To afford mutual support (eliminate blind spots).
3. To confer moral advantage.
4. Means of securing best results for certain operations.

Achievement of Objects.

① Leadership.
② Inter communication
③ Discipline
④ Drill
⑤ Fire Tactics.

Example of Advan. Close Form.

① attack. Confine bombs to small space.
② Facilitate co-ord. + concentration of gun fire.
③ Defense. Ensure max. concentration of supporting fire.
④ Present as small a target as possible.
⑤ Facilitate evasion by manoeuvre.

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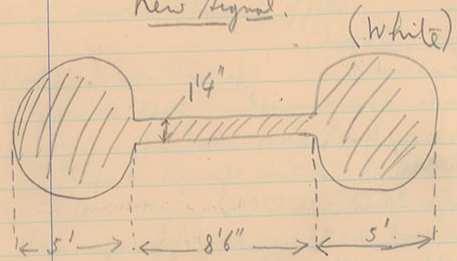
Advantages of Ofa Form.

(1) Primary task observation fm ground (patrol).
(2) Aut. forms. separate traffic through clouds.
(3) —"— with R.T. are distributed above & below cloud layers.
(4) Desired to straddle bombing objective to minimise chance of missing.

New Signal.

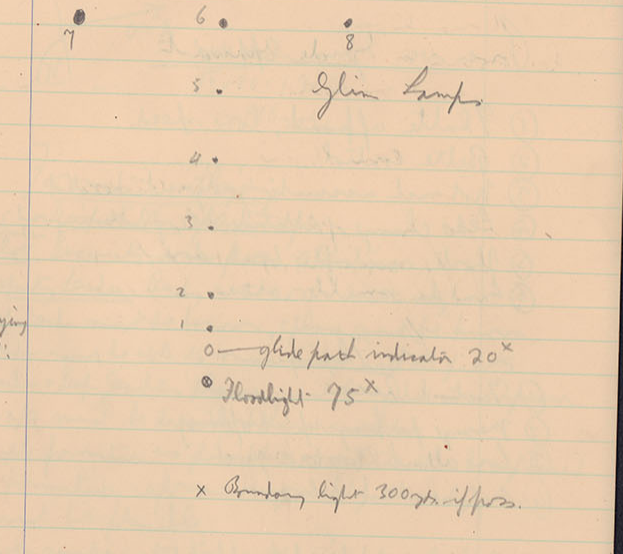


U/S except for runways.

Pilots' Lights 1000 yds. apart normal.

Flare Path With Floodlight (only good visibility).

× Boundary light (orange or amber). 300 yds. if poss.



† Sloping post.

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1.4
1.4
1.4 : 1.6
1.9

Night Flying
Formation Flying
Low Flying

Power over Glide Approach

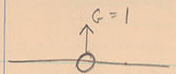
1. Flatter approach, low speed.
2. Better control.
3. Not much accuracy judgment needed
4. Less change of attitude when flattening out.
5. Shorter run after touch down.
6. Land in smaller area.

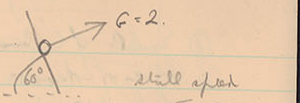
Low Flying.

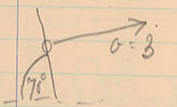
1. Tactical Recce.
2. Message picking up & dropping.
3. Low attack (bombs or guns).
4. Surprise attack on Enemies.

Wind Gradient.

1. ~~Cross~~ Must glide with excess speed.
2. Steeper glide.
3. Use power approach.







still speed now
√3 × 80 = 1.7 × 80
= 136 mph.

Formation Flying.

Disposition of aircraft.

1. Pilots. Security, cruise flown, & training.
2. Deputy Leader. Ready to take over instantly.
3. Def. Leader must be known, & place must be known.
4. Leader must be able to communicate with all pilots.
5. Leader & Def. Leader's planes must be marked so as confusion.
6. No a/c must be directly behind another.
7. Simple formation so possible casualties can be replaced & formation reformed quickly & easily.
8. Must be flexible.

Even numbers starboard, odd numbers to port.

Size of Formation.

1. Basically a squadron. To develop to full form of off. & def. Few experienced leaders required.

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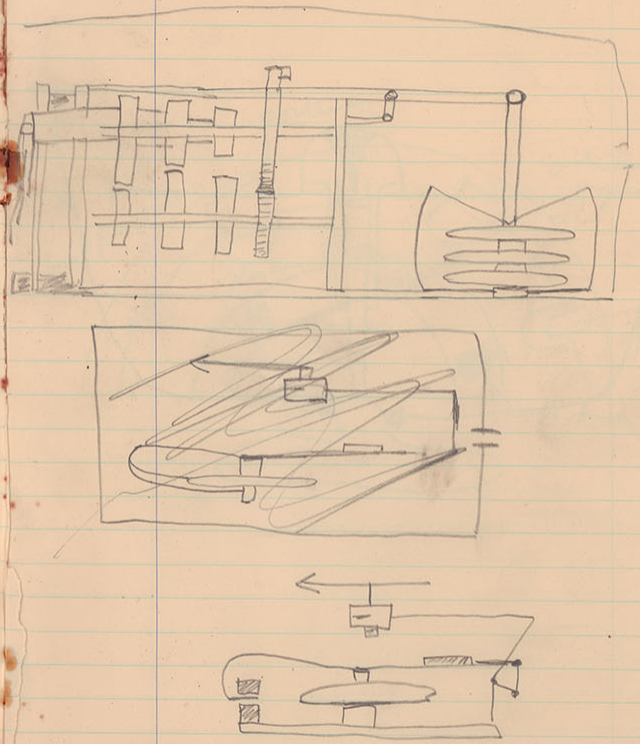
Limiting Size of Formations

(1) Ease of Control.
(2) Power of cohesion. Good station keeping. Magnification of faults at rear machines.
(3) Power of manoeuvre.
(4) Flexibility (in attack).

Points Instruction Before Take-off.

1. Object of Flight.
2. Time to have a/c in position, engines running.
3. Method of taking off.
4. Position of each a/c for taking off.
5. Type of training formation to be adopted & exact position of each a/c in it.
6. Hand signals to be employed.



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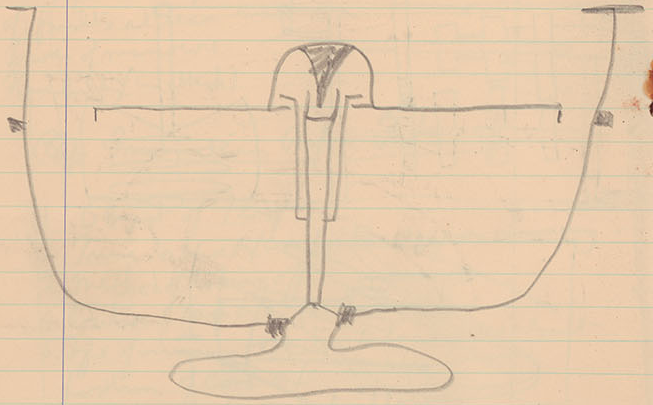

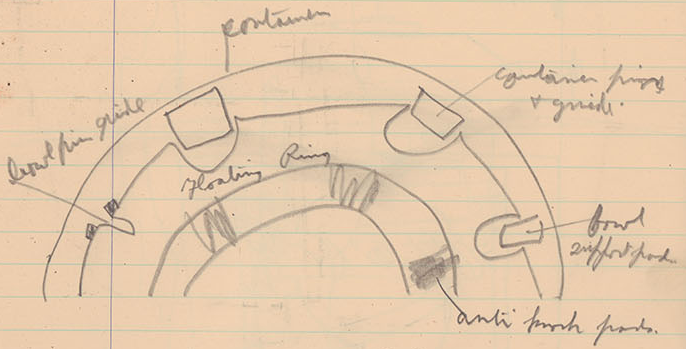

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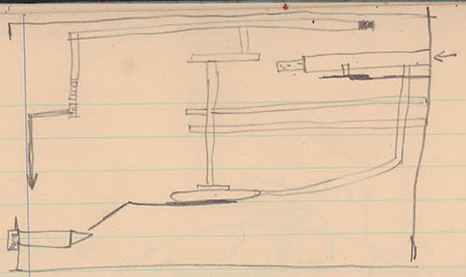

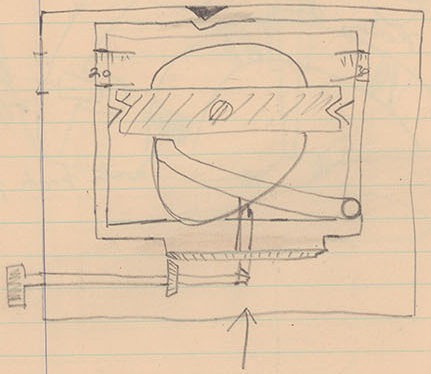

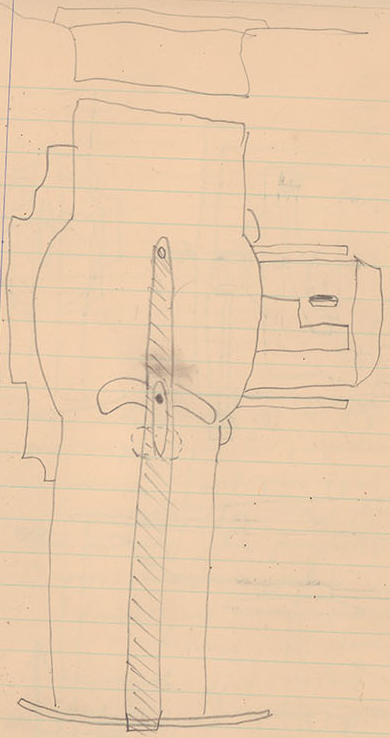

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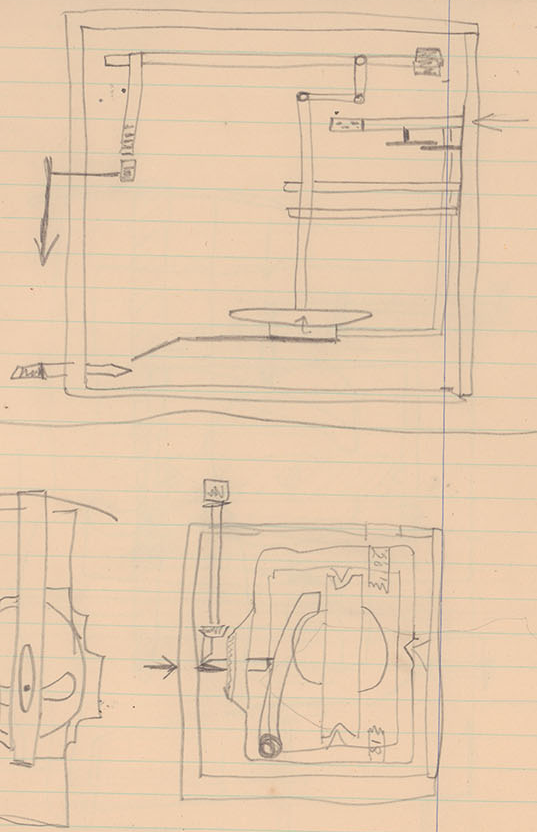
15. When in communication with regional control stn. state priorities used & reasons for same.
16. What facilities available at reg. con. stns. for night or fog landings.
17. State reasons why discards of W/T confused with R/T.
18. Detail medium frequency D/F organisation.
19. Describe 3 classes of D/F bearings.
20. —x— method & reasons for bracketing.
21. —·—·— ignition screening & reason for it.
22. Brief descrip. of electrical night-flying test (pilots).
23. Precautions pilot observe W/T operator using trailing aerial.
24. Action taken when acid spilt from accum. in a/c.
25. State what know about reg. control scheme with ref. to D/F & assistance that can be given to you.



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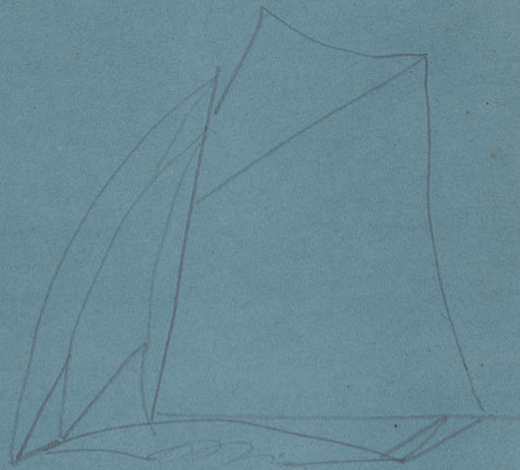

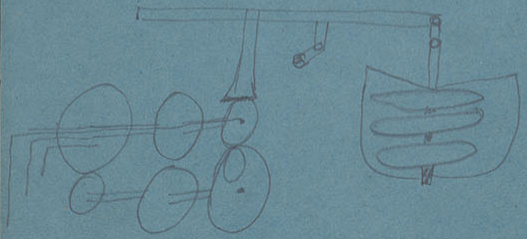

Engines.

Re Lecture 1. Page 89, 90 of A.P. 1723.

If 109, 110 (Fig 3).

Rated altitude.

Limit to height at which blower can sustain ground level induction pipe pressure. This is known as rated height, critical alt., a full throttle height. An engine in which blower can sustain ground level press. to say 12000' is known as 12000' engine. At this height the carb. throttle is wide open & power output falls off as this height is exceeded until an alt. is reached beyond which the engine cannot maintain height (absolute ceiling).

Service ceiling implies max. height at which a particular type of aircraft will ascend with service load & maintain a climb of approx 150' per min.

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