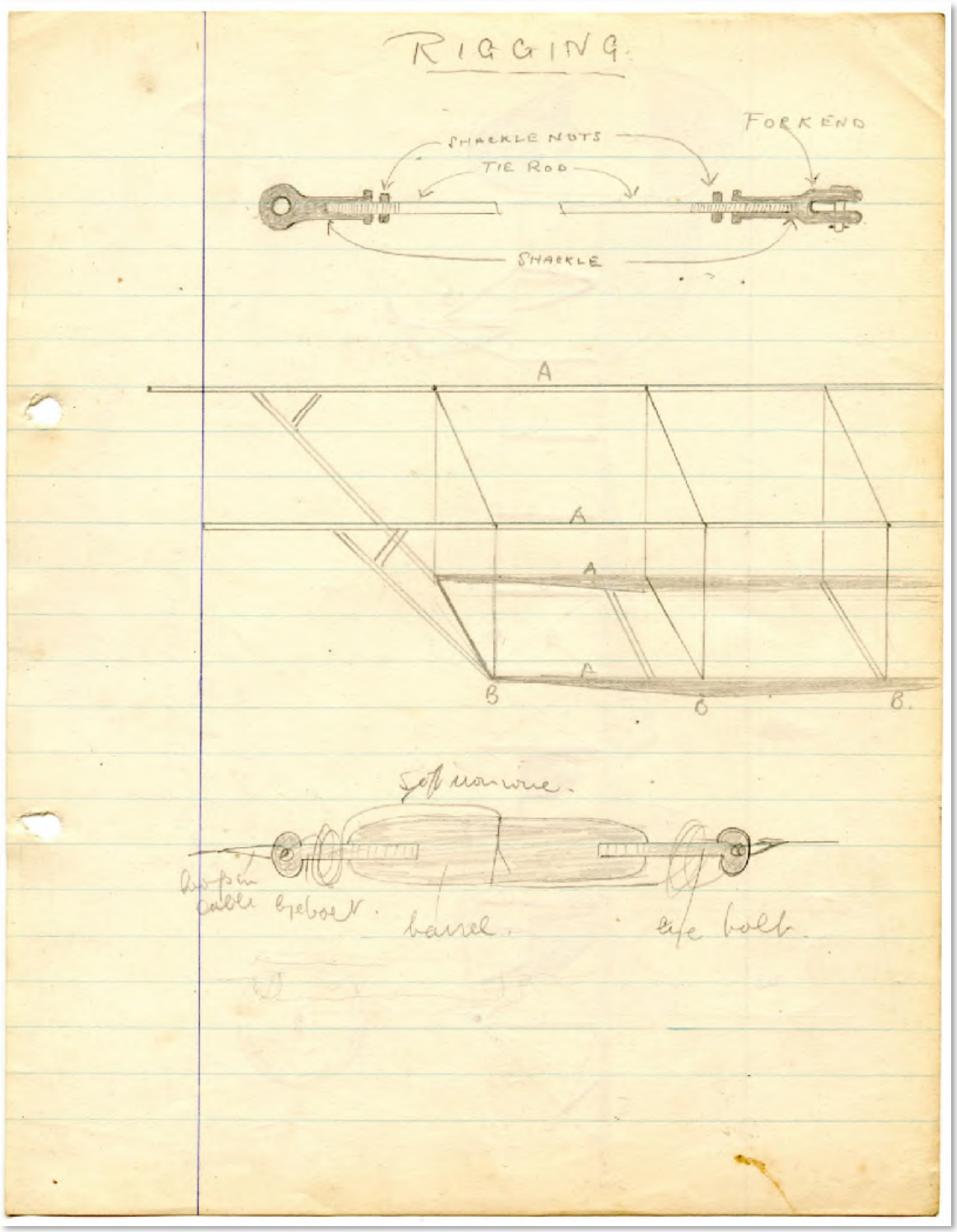
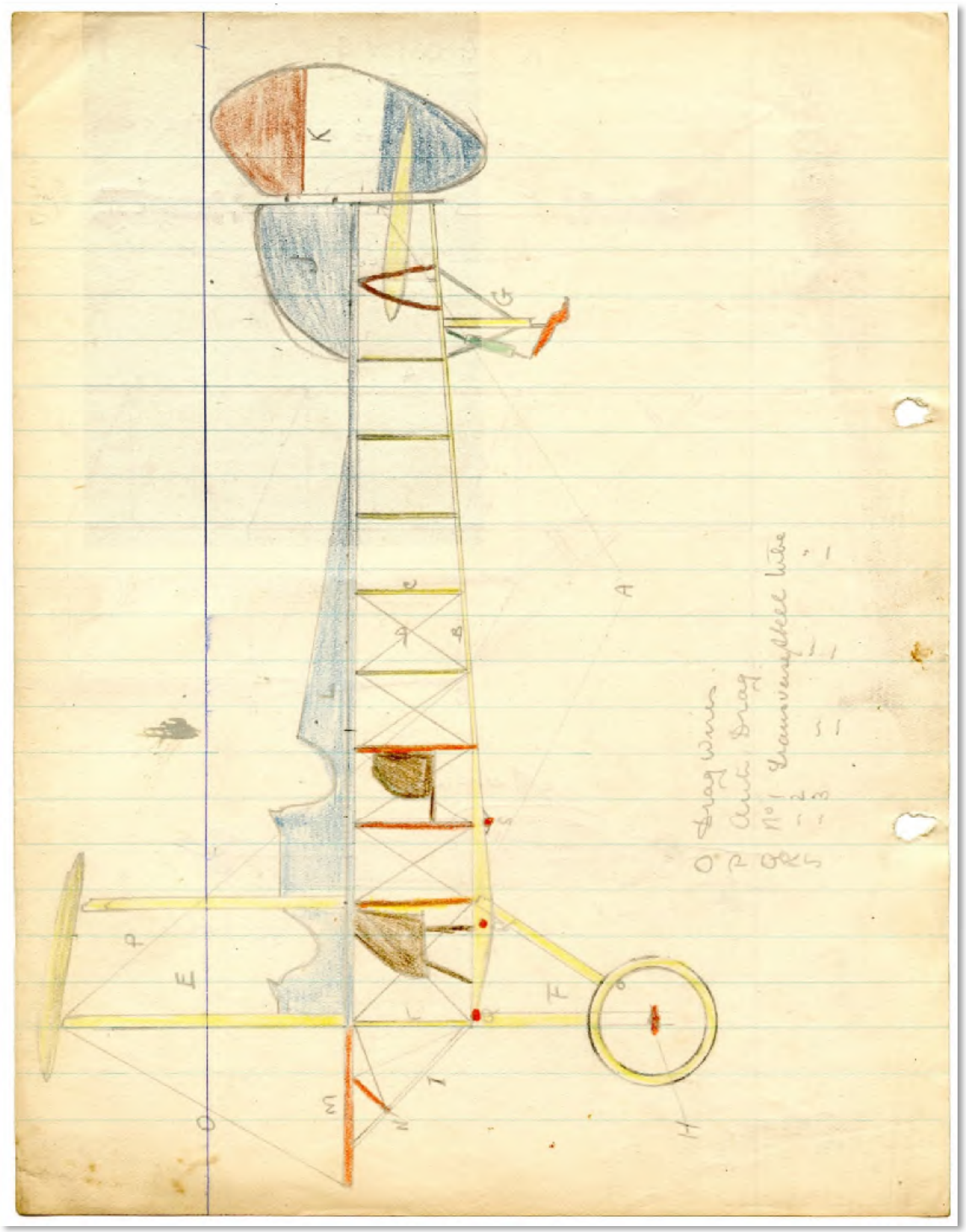
RIGGING



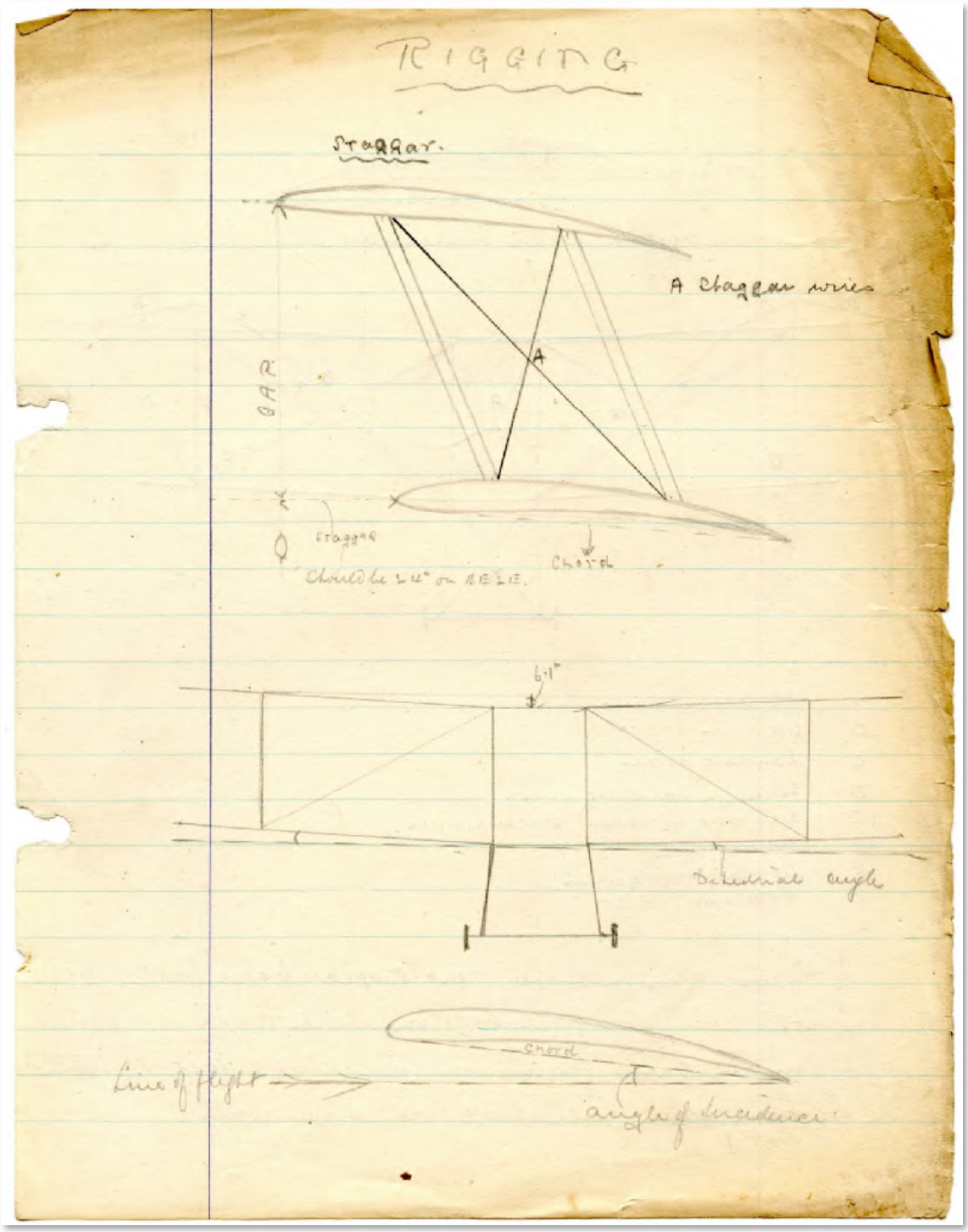
(Full page illustration of various bits of aeroplane rigging – shackles, airframe, barrel)

RIGGING

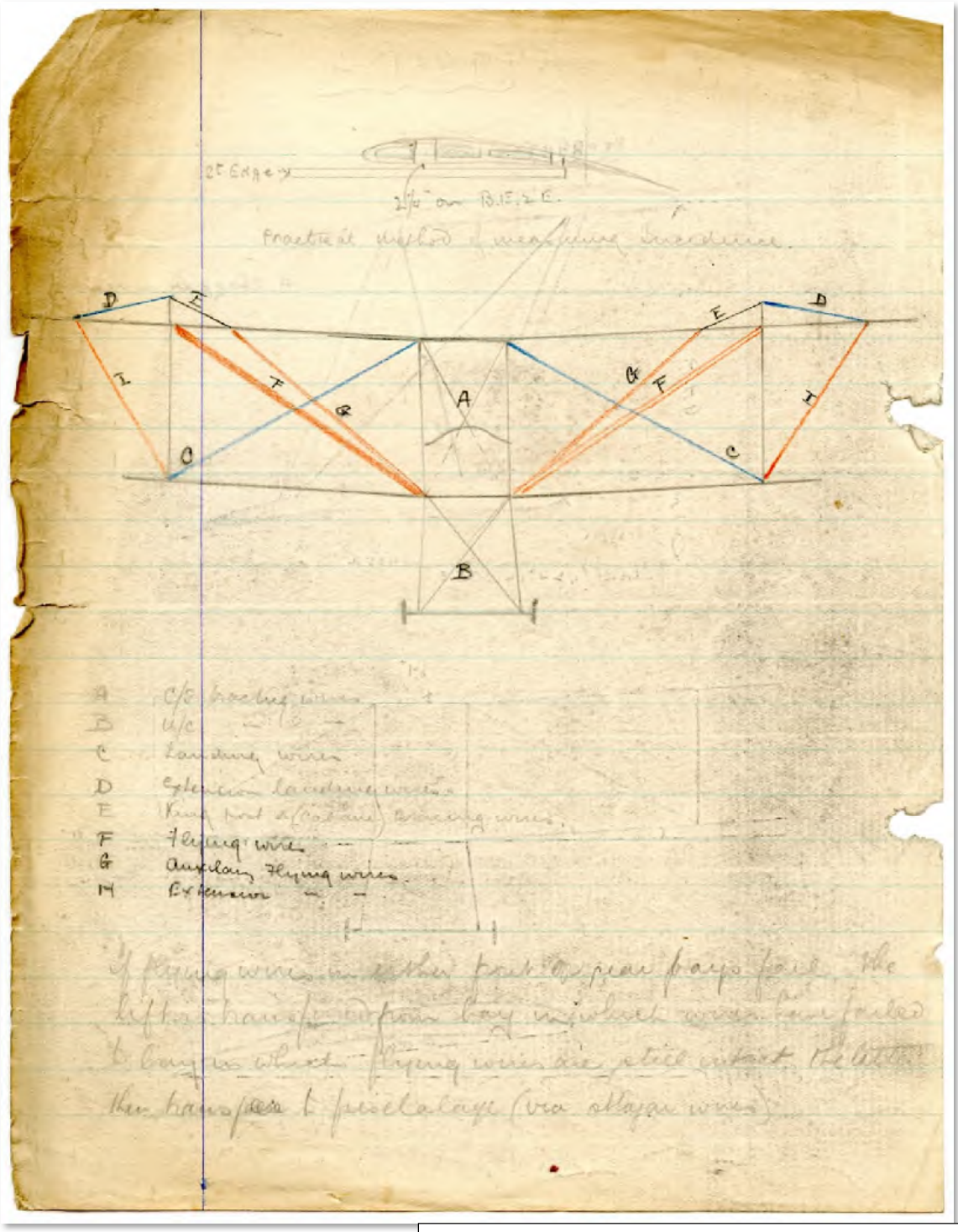


(Full page illustration of aeroplane rigging & wiring)

RIGGING



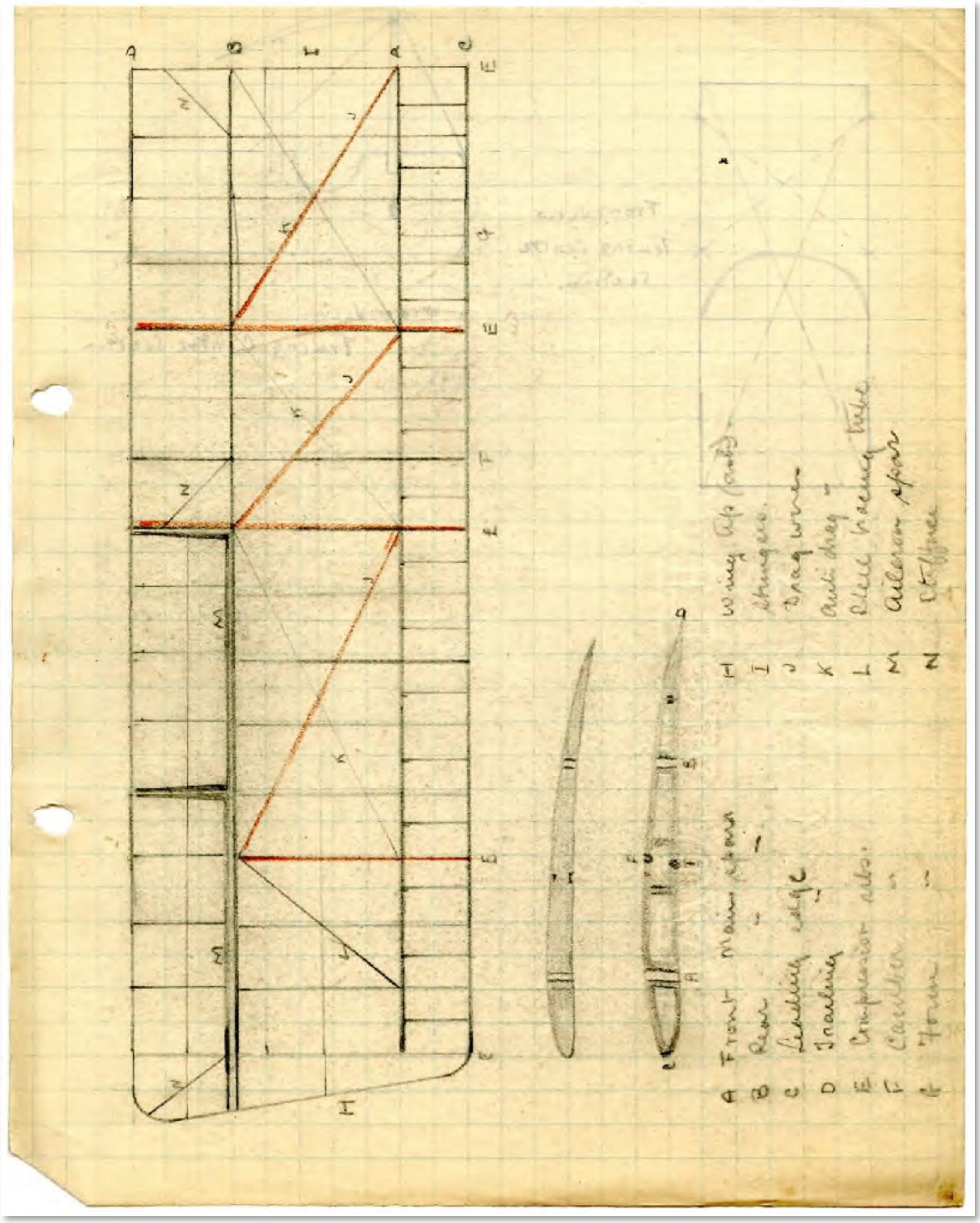
(Full page illustration of various bits of aeroplane rigging – wing sections)



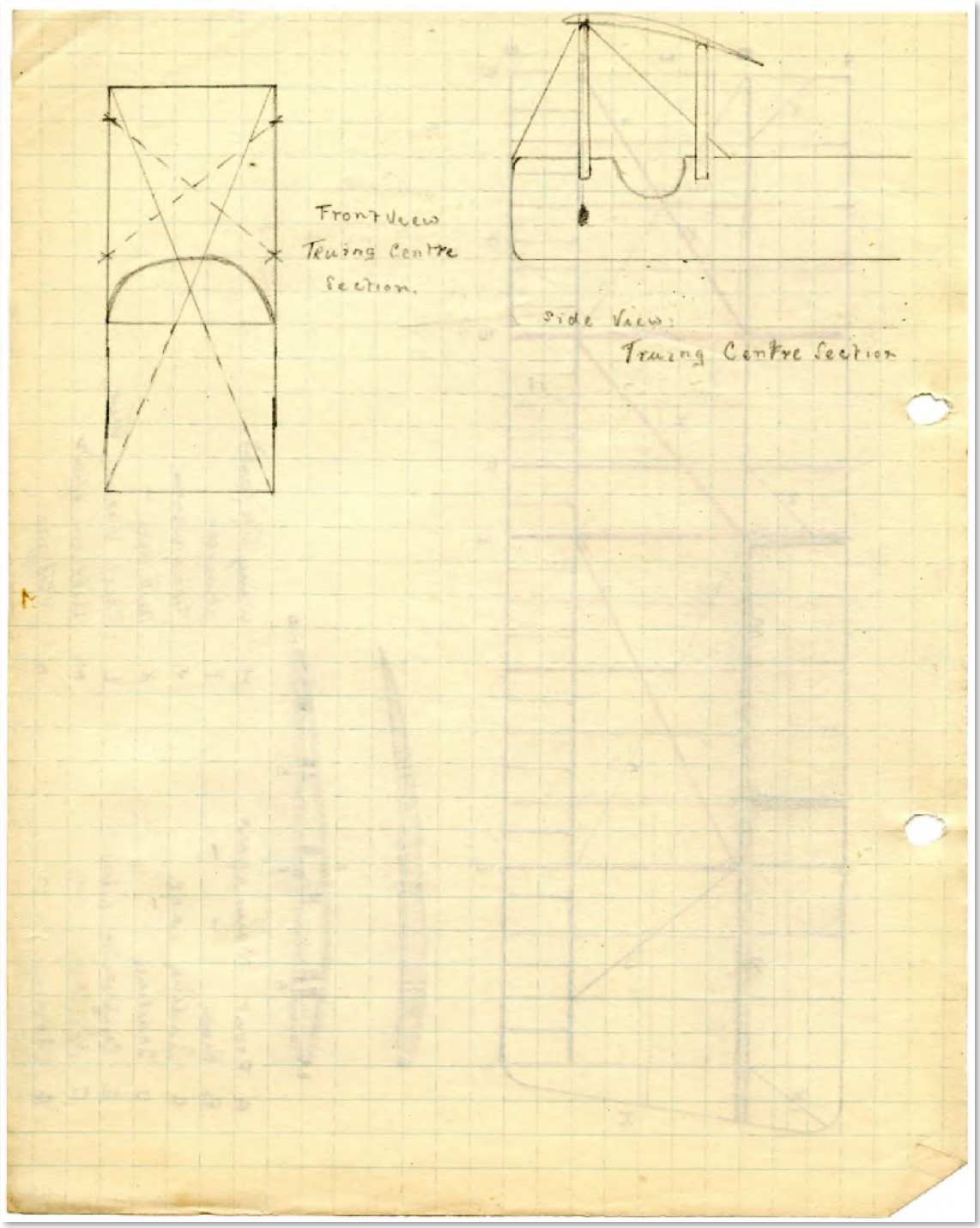
(Illustration of aeroplane schematic & wiring)

A	C/S [illegible] wires
B	U/C " "
C	Landing wires
D	Extension landing wires
E	King post or (cabane) Bracing wires
F	Flying wires
G	Auxiliary Flying wires
H	Extension " "

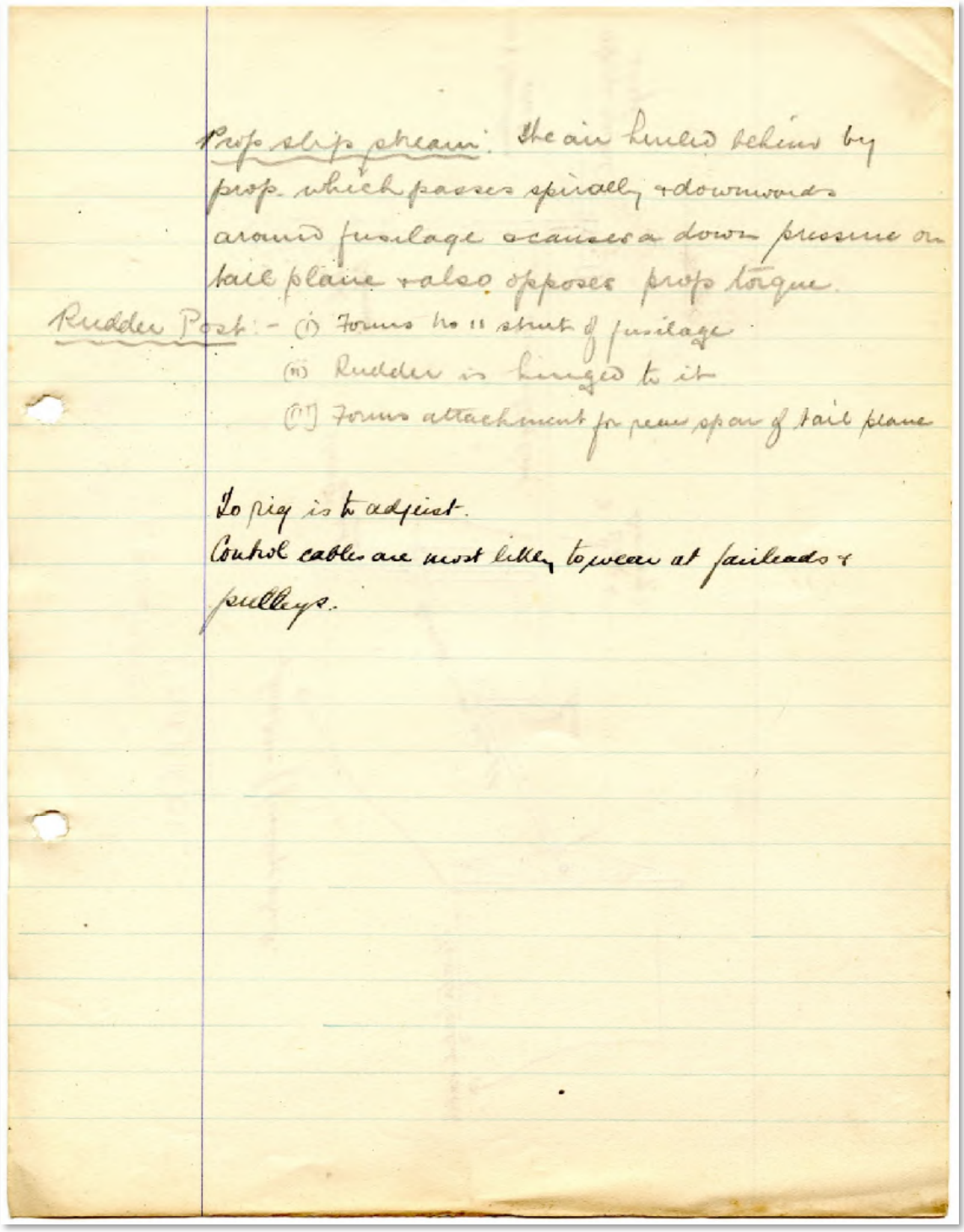
If flying wires in either front or rear bays fail, the lift is transferred from bay in which wires have failed to bay in which flying wires are still intact, the latter then transfers to fuselage (via [illegible] wires)



(Illustration of wing detail – leading & trailing edge, wiring etc)

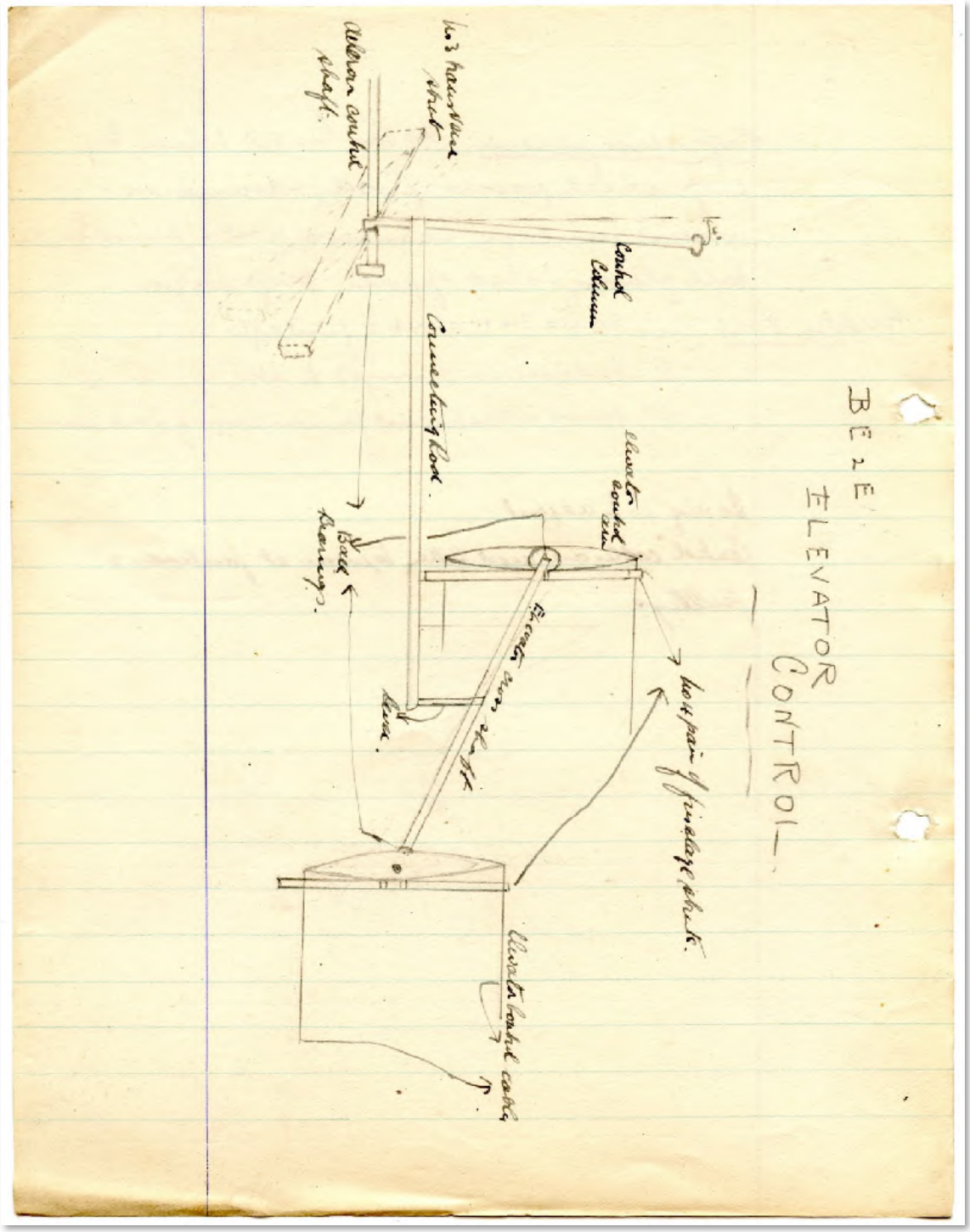


(Illustration of detail of truing centre sections)

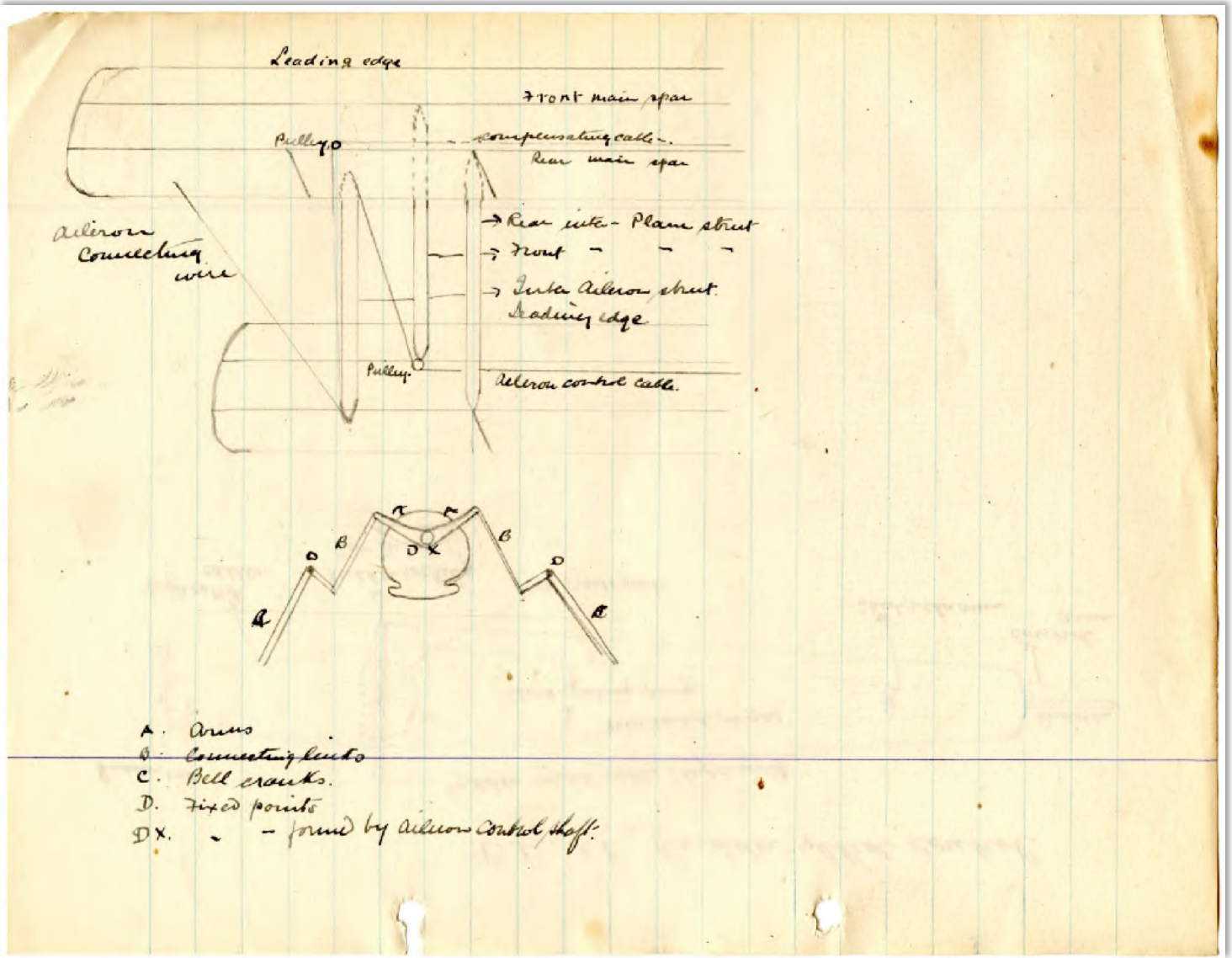


Prop slip stream: The air [illegible] by prop which passes spirally & downwards around fuselage & causes are down pressure on tail plane & also opposes prop torque.
Rudder Post:
(i) Forms No 11 strut of fuselage
(ii) Rudder is hinged to it
(iii) Forms attachment for rear span of tail plane

To rig is to adjust.
Control cables are most likely to wear at fairlead & pulleys.

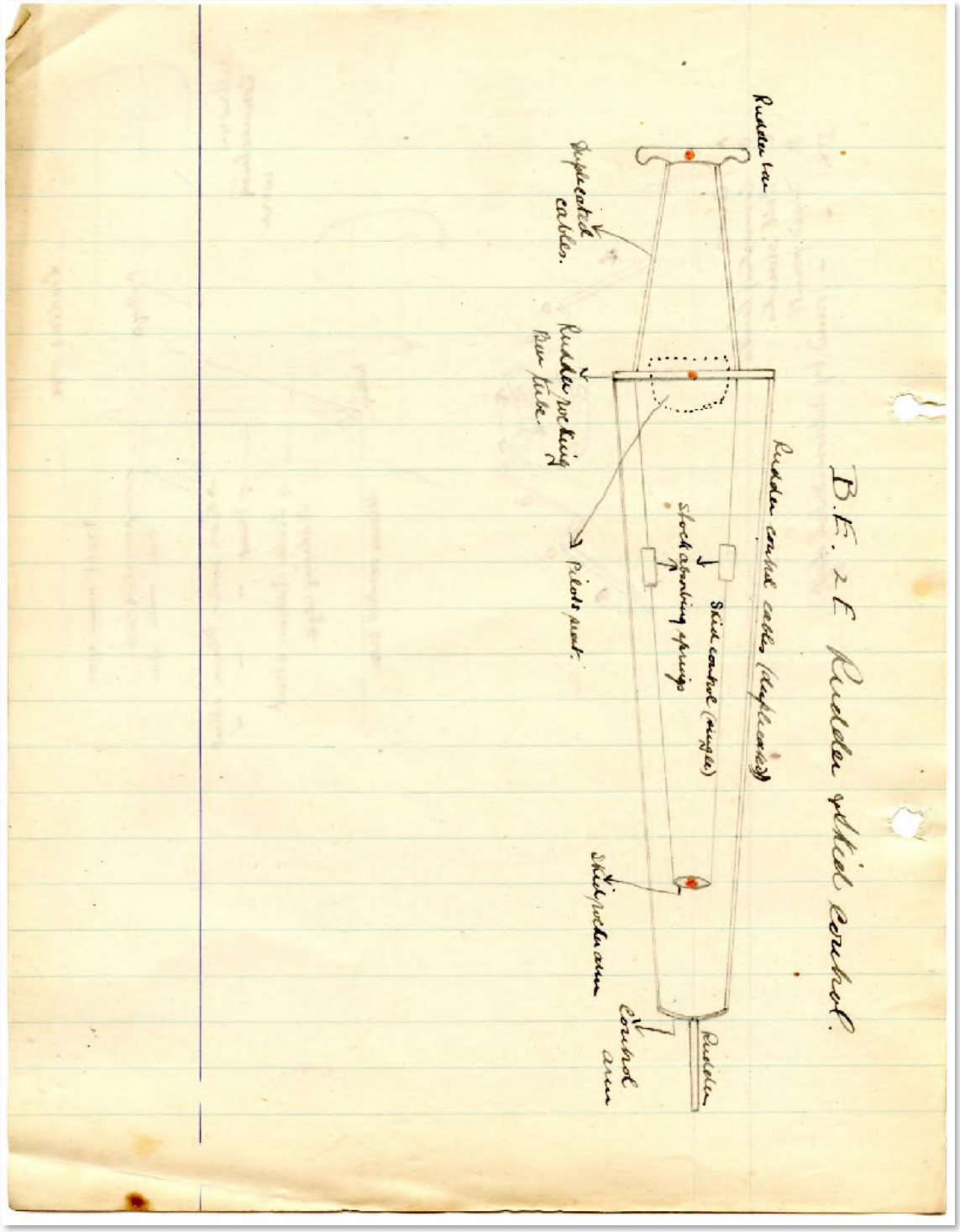


(Full page illustration)



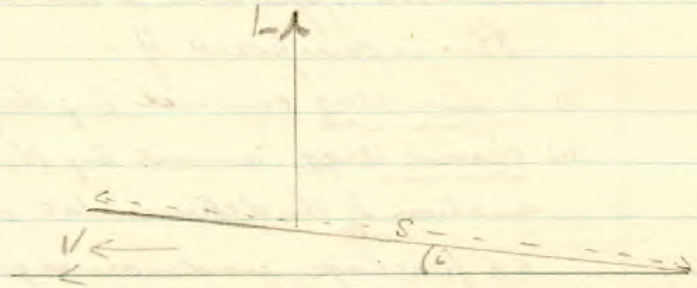
(Detailed illustration of wing detail – wiring etc)

B.E. 2 E Rudder & skid control



(Illustration of rudder)

Flight by the Aerofoil method:- is obtained by the forward motion of a plane or "aerofoil" through the air at an angle of incidence



Lift varies as SiV^2.
Lift is the force at L to direction of motion

Reasons for using a cambered plane (i.e. a plane shaped like a birds wing):-
(i) Gives more lift because of air deflected upwards at the leading edge.
(ii) Gives less drag because of less eddies being formed & because the rear part of plane gently tapers to a thin edge.

Flight by the Aerofoil method: is obtained by the forward motion of a plane or "aerofoil" through the air at an "angle of incidence"

(Illustration of aerofoil)

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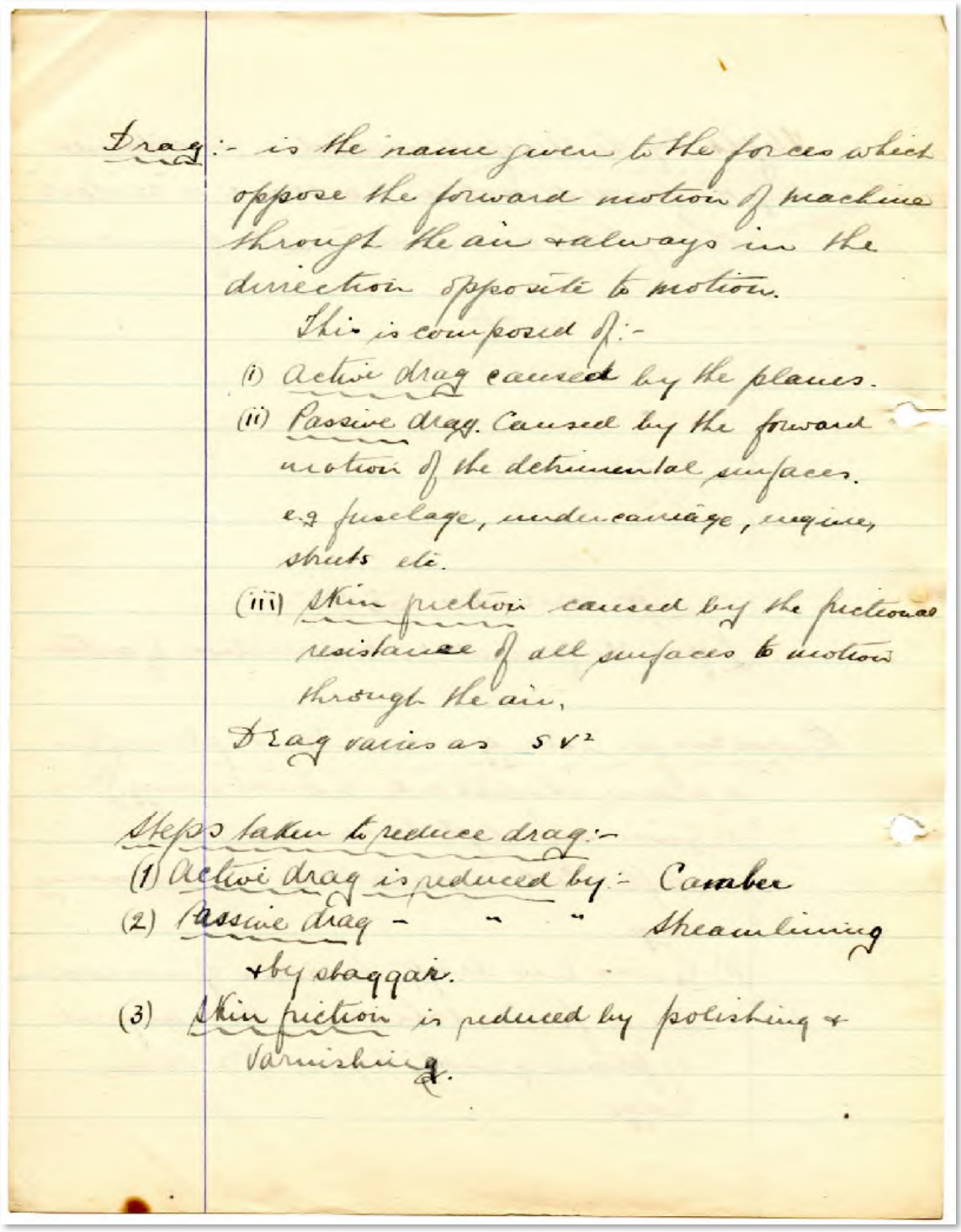

Drag:- is the name given to the forces which oppose the forward motion of machine through the air & always in the direction opposite to motion.

This is composed of:-

(i) Active drag caused by the planes.

(ii) Passive drag. Caused by the forward motion of the detrimental surfaces. e.g. fuselage, undercarriage, engines, struts etc.

(iii) Skin friction caused by the frictional resistance of all surfaces to motion through the air.

Drag varies as SV^2

Steps taken to reduce drag:-

(1) Active drag is reduced by:- Camber

(2) Passive drag - " " Streamlining & by staggar.

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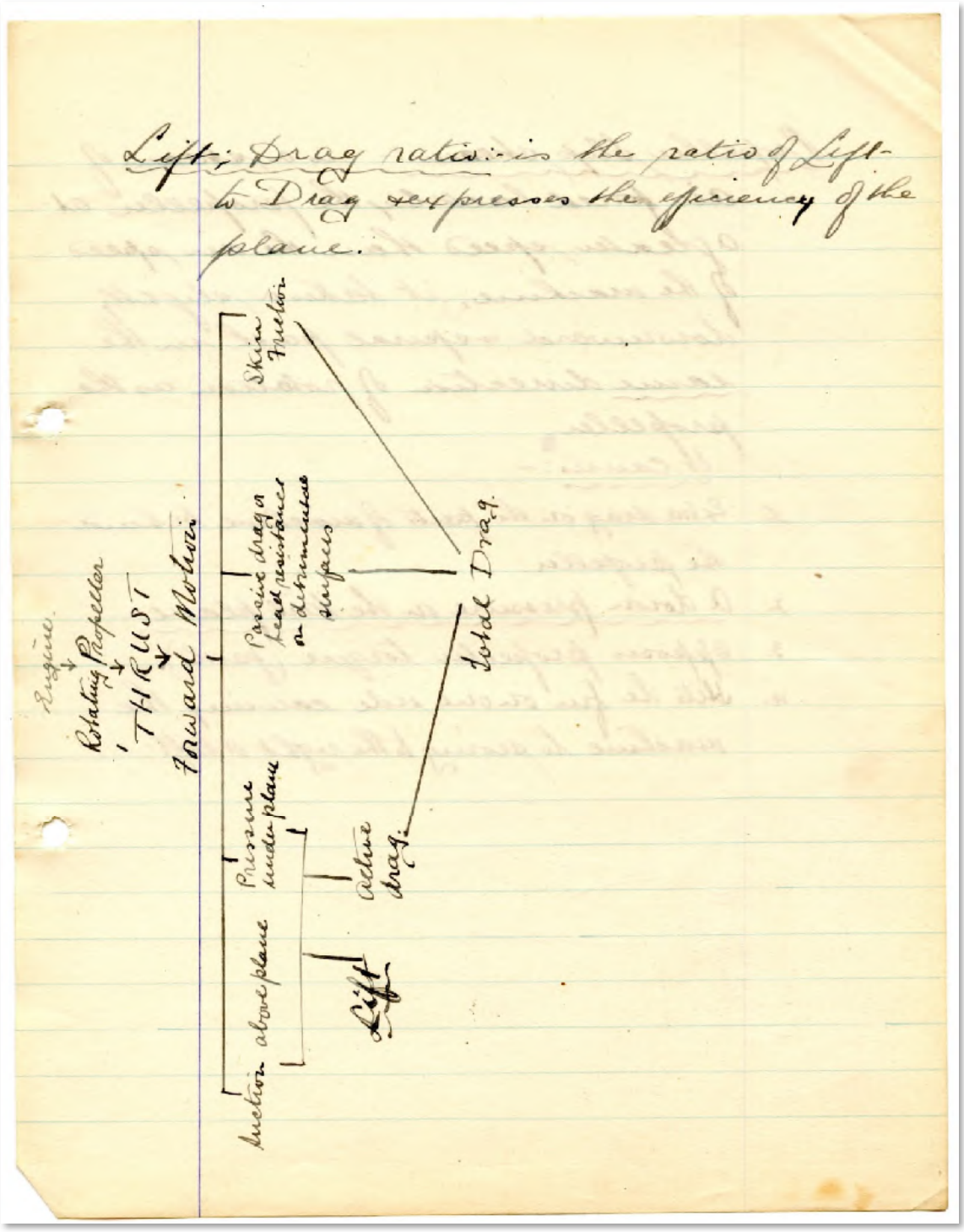
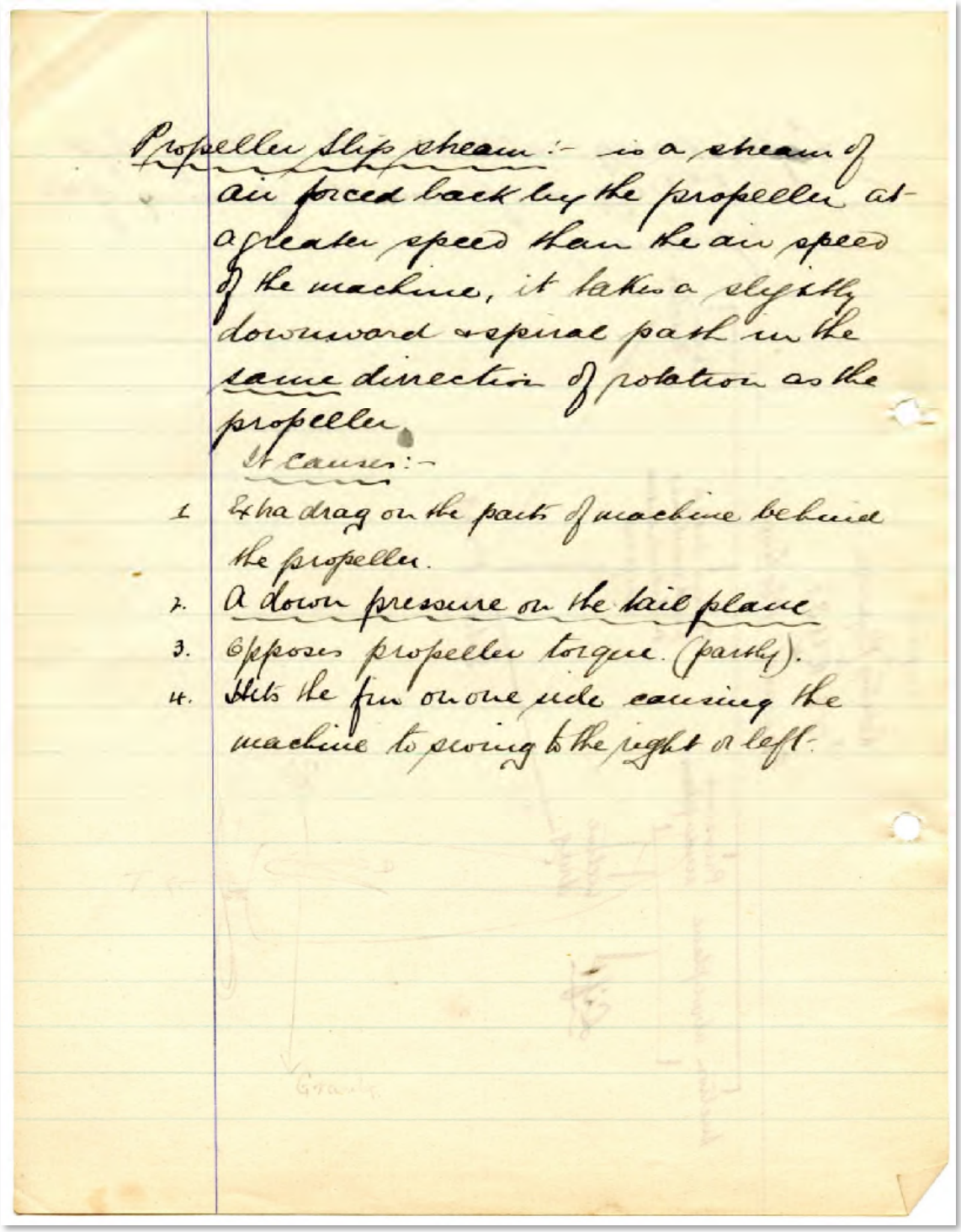


Lift; Drag Ratio: is the ratio of Lift to Drag & expresses the efficiency of the plane

(Illustration of forces on plane creating drag)



Propeller Slip stream :- is a stream of air forced back by the propeller at a greater speed than the air speed of the machine, it takes a slightly downward & spiral path in the same direction of rotation as the propeller.

It causes :-

1. Extra drag on the parts of machine behind the propeller.
2. A down pressure on the tail plane
3. Opposes propeller torque. (partly).
4. Hits the fin on one side causing the machine to swing to the right or left.

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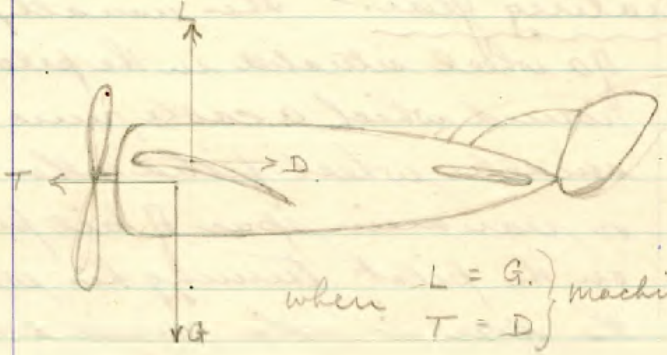
Forces acting on machine in horizontal flight.



Flying speed:- The speed of the machine at which the lift force is equal to the force of gravity, the drag being counteracted by the force of thrust.

Landing speed:- is the lowest speed at which the machine will fly without loosing height.

Stalling:- is loosing flying speed & thereby loosing height on a steep descent out of control.

Forces on machine in horizontal flight

(Illustration of forces on plane in horizontal flight)

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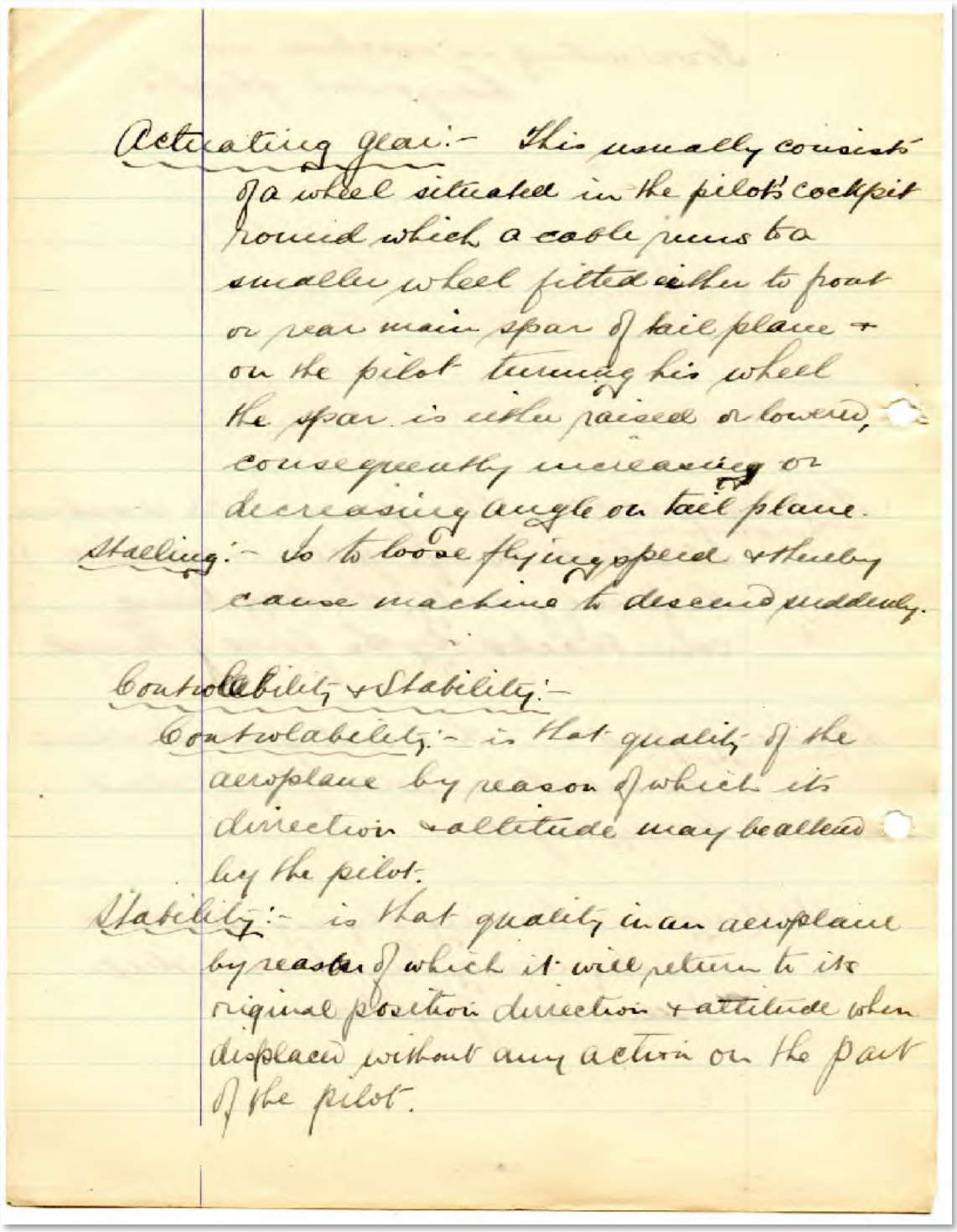

Actuating gear:- This usually consists of a wheel situated in the pilot's cockpit round which a cable runs to a smaller wheel fitted either to front or rear main spar of tail plane & on the pilot turning his wheel the spar is either raised or lowered, consequently increasing or decreasing angle on tail plane.

Stalling:- is to loose flying speed & thereby cause machine to descend suddenly.

Controllability & Stability:-

Controllability:- is that quality of the aeroplane by reason of which its direction & altitude may be altered by the pilot.

Stability:- is that quality in an aeroplane by reason of which it will return to its original position direction & attitude when displaced without any action on the part of the pilot.

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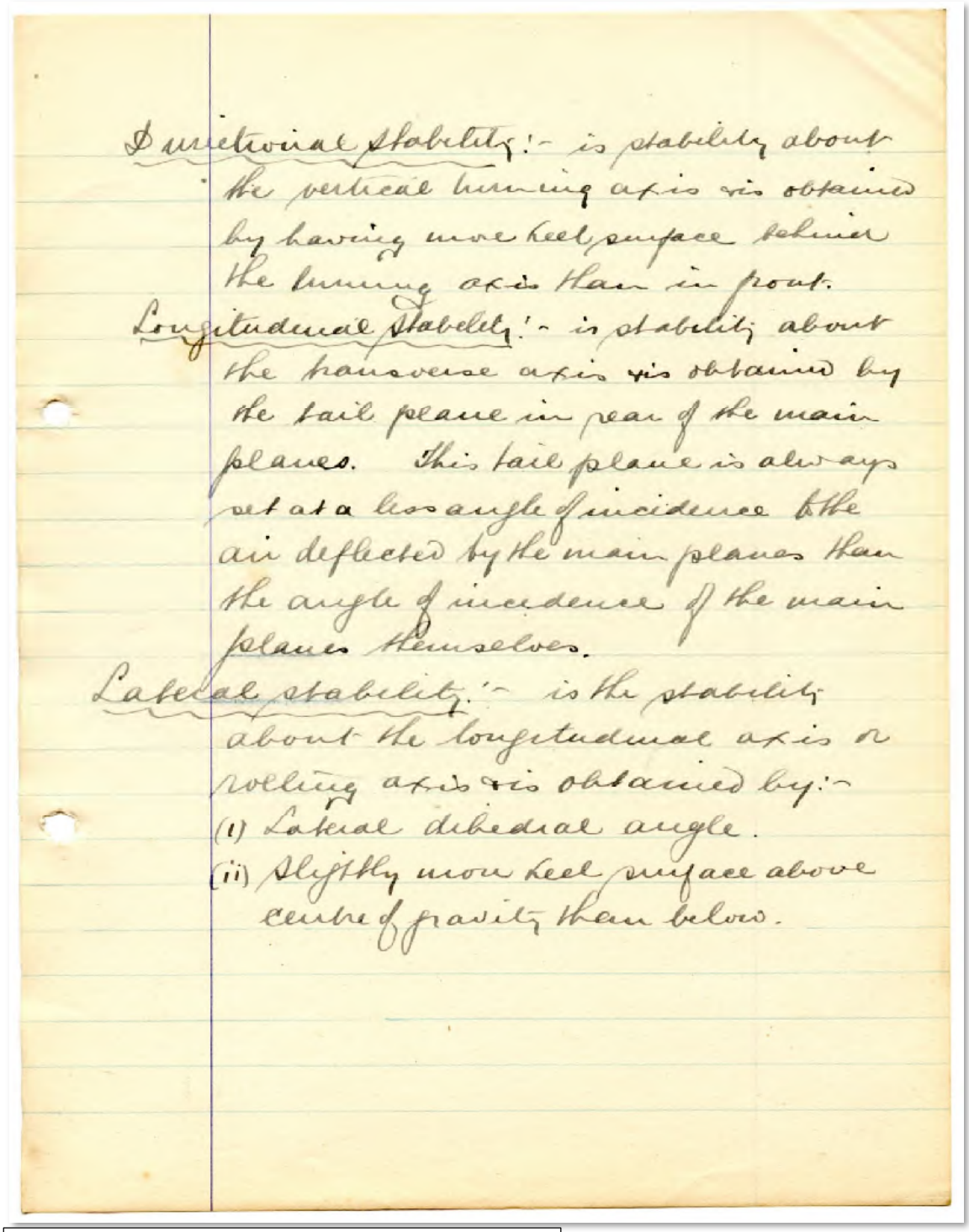

Directional stability:- is stability about the vertical turning axis & is obtained by having more keel surface behind the turning axis than in front.

Longitudinal stability:- is stability about the transverse axis & is obtained by the tail plane in rear of the main planes. This tail plane is always set at a less angle of incidence to the air deflected by the main planes than the angle of incidence of the main planes themselves.

Lateral stability:- is the stability about the longitudinal axis or rolling axis & is obtained by:-

(i) Lateral dihedral angle.

(ii) Slightly more keel surface above centre of gravity than below.

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