

Constant speed propeller.

Why do we need constant speed prop?

- constant RPM
- control pitch or angle of propeller.

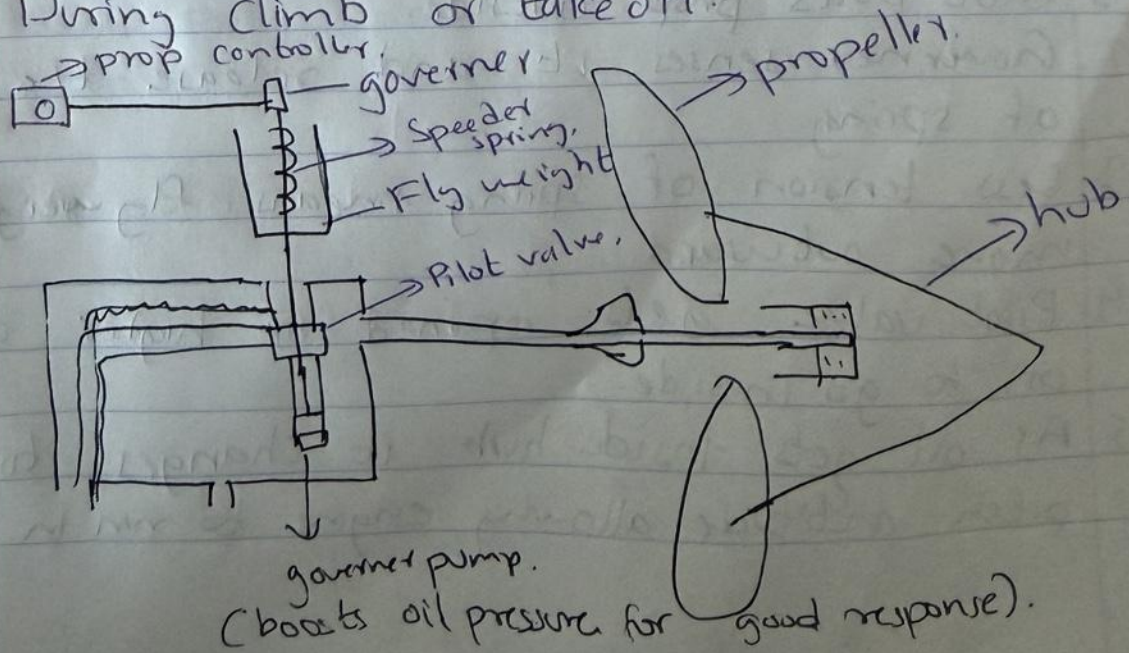
What additional equipment do we need?

- Manifold pressure gauge. (Indicates engine power)
- Tachometer (Indicates RPM).

How does it work?

- Cockpit prop control (blue lever) is connected to governor system.
- Governor system changes angle of blade.

During climb or take off.



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Propeller blade is changed hydraulically with help of engine oil.

How propeller works on climb?

1. Pilot push prop inside.
2. Governor receives the input and pushes speeder spring.
3. Speeder spring causes tension to pull flyweight inward.
4. Pilot valve get lowered and the oil is escaped from the hub.
5. Oil from hub is released and creates low pitch angle blade.

How propeller works on cruise?

1. Pilot pulls prop outside.
2. Governor senses it and release the tension of spring.
3. Less tension of spring means flyweight to move outward.
4. Pilot valve gets opened or higher allowing oil to go inside.
5. As oil gets inside hub it changes to high pitch attitude allowing engine to run in low RPM.

low blade angle $\rightarrow$ High RPM

High blade angle $\rightarrow$ low RPM

How to properly use propeller?

$\rightarrow$ Prop on top.

Adding power scenario.

$\rightarrow$ First, prop forward to increase RPM

Second, throttle forward to increase manifold pressure.

Reducing power scenario.

$\rightarrow$ First, pull throttle.

$\rightarrow$ Second, pull prop

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How does propeller maintains RPM during climb or descend?

Climb = under speed.

→ Climbing & pitch up.

→ starts slowing ~~per~~ down.

→ flyweight starts to move inward

→ pilot valve moves down and oil flow outside the valve.

→ Reduces the blade angle.

→ Engine speed up again and resumes its normal RPM.

descend = overspeed

→ pitch down

→ fly wheel moves outwards.

→ pilot valve moves up and sends oil to hub.

→ changes blade angle.

→ maintains speed and RPM.

Feathering & wind milling

- used during engine failure as it creates less drag.

What happens if you lose your engine oil?

- Automatically put in low pitch setting.
- the bigger concern might be engine failure now if no oil.