



Exercise 8 / Hovering

Aim: To teach how to hold a given heading position relative to the ground maintaining a constant heading, height

Airmanship:

- **Lookout and RT, T&P's, warning lights, fuel**
- **Wind velocity and direction**
- **Min 5 ft hover**
- **Be aware of downwash**

Many people find this exercise one of the most difficult. It, takes time with constant improvement. With this exercise you are learning a new skill just like riding a bike. It won't come all at once but you should feel an improvement every time you try. We tend to break this down into smaller exercise slots and mix it with a revision of exercise 6 as hovering for an hour on your first few lessons would be too much. Learn this exercise slowly, there's a lot going on and most students simply try too hard. This results in over inputting on the controls and, because of the lag or delay, normally move the controls too far. Focus on the outside reference. Don't be tempted to look at the ground. Solve the problems one at a time.

Pedals Power Cyclic

Pedals: Maintain heading and work in the natural sense **LOOK WELL AHEAD, Look for a good reference well ahead of the AC.**

Collective: Controls height raising and lowering lever. **Use to ref points to maintain level.**

Cyclic: Maintains Att and position over the ground **(roll & pitch) Look at the horizon**

Stability:

The Helicopter is statically stable and dynamically unstable

Statically Stable; after being disturbed the helicopter will return to its original position

Dynamically Unstable; after returning the helicopter will oscillate with increasing amplitude through its point of origin

Attitude in the Hover:

Unlike forward flight the position of the cyclic is related to the centre of gravity of the helicopter depending on weights, pilot position and fuel. A nose up or nose down position will be noticed depending on the CofG position.

Tail Rotor Drift:

The tail rotor of the R22 pushes the tail rotor to the right to compensate for the engine torque. This causes an overall reaction to the starboard known as a coupling reaction. To overcome this reaction the main rotor must be tilted to the left slightly to compensate.

Left Skid Low:

It is this tail rotor thrust in conjunction with the compensating left main rotor bias which creates a rolling couple between the main rotor and the tail rotor. This causes the helicopter to “hang left skid low”

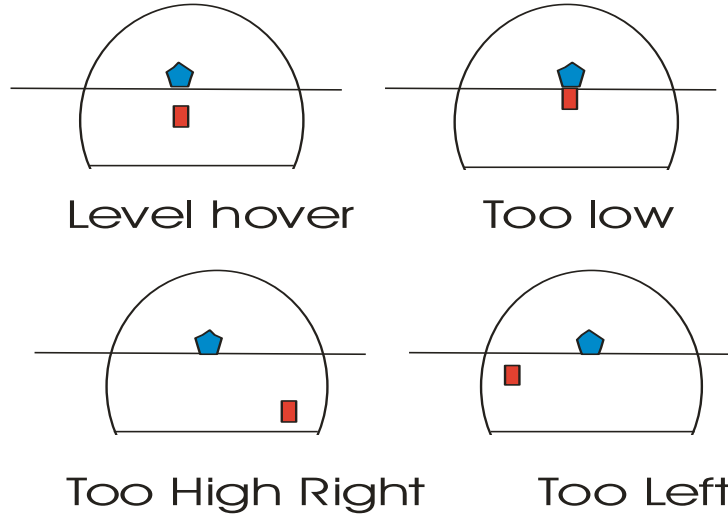
Ground Effect:

Ground cushion occurs at approximately 5” (2/3 rotor diameter) hover height. It is caused by air from the down wash being unable to escape. For a full explanation see page 62 Wagtendonk POF.

Air exercise

1. Ground Effect
2. Wind Effects
3. Out Wind Hovering
4. Hover taxi
5. Hover engine off landings demonstrate

You should choose two reference points, one about one hundred to two hundred metres away and one in your eye line or horizon line.



Discussion Points

- Yaw string can be used to identify wind direction
- Translational lift – wind velocity
- Ground cushion – wind velocity
- Stability

NOTES

