

Ex 10 Transitions

Aim: To learn how to transition from the hover to forward flight and return from forward flight to a hover.

Airmanship:

- **Lookout - Look behind 90° turns left & right**
- **Ground no obstructions**
- **Wind direction and velocity**
- **Performance 1" in hand 22" 23"**
- **Avoid curve, Carb heat**

Transition is what we call moving from one state of flight to another, in this case moving from the hover into a state of forward flight and returning then into the hover. Below is a list of the aircraft tendencies. We must in this exercise revise our notes on the hover and also principles of flight on transitional tendency and effects of induced flow. There is quite a lot happening to the aircraft as the air inflow changes from the hover state and by anticipating that change we can be ready on the controls.

- A. Firstly as we have been in the hover assuming a standard 3ft hover we have had a degree of ground cushion reducing our overall need for power. Once we move forward we leave our ground cushion and the aircraft will sink. Raise the collective about an inch to compensate.
- B. The tips of our blades at the front are now benefitting from added induced flow. However due to the gyroscopic principle that benefit will happen 90° to the front and therefore the lift will be on the left rolling the aircraft to the right. If the wind however is more than 10 kts it will be unnoticeable.
- C. After reaching about 18kts the whole disc will benefit from increased induced flow and flap back, push forward.
- D. You will then feel the aircraft increase height suddenly. You need to push through this increasing your ground speed otherwise the aircraft will climb but also slow down putting you in a high and slow position.
- E. As the aircraft accelerates, the airflow over the body and through the tail fins reduces the need for tail rotor anti torque and you must then rebalance with right pedal.
- F. Once established at about 50 kts pull back the aircraft level and re balance as required. Then after clearing any obstacles at about 20ft do an 'in the climb' check and remember CARB HEAT.

