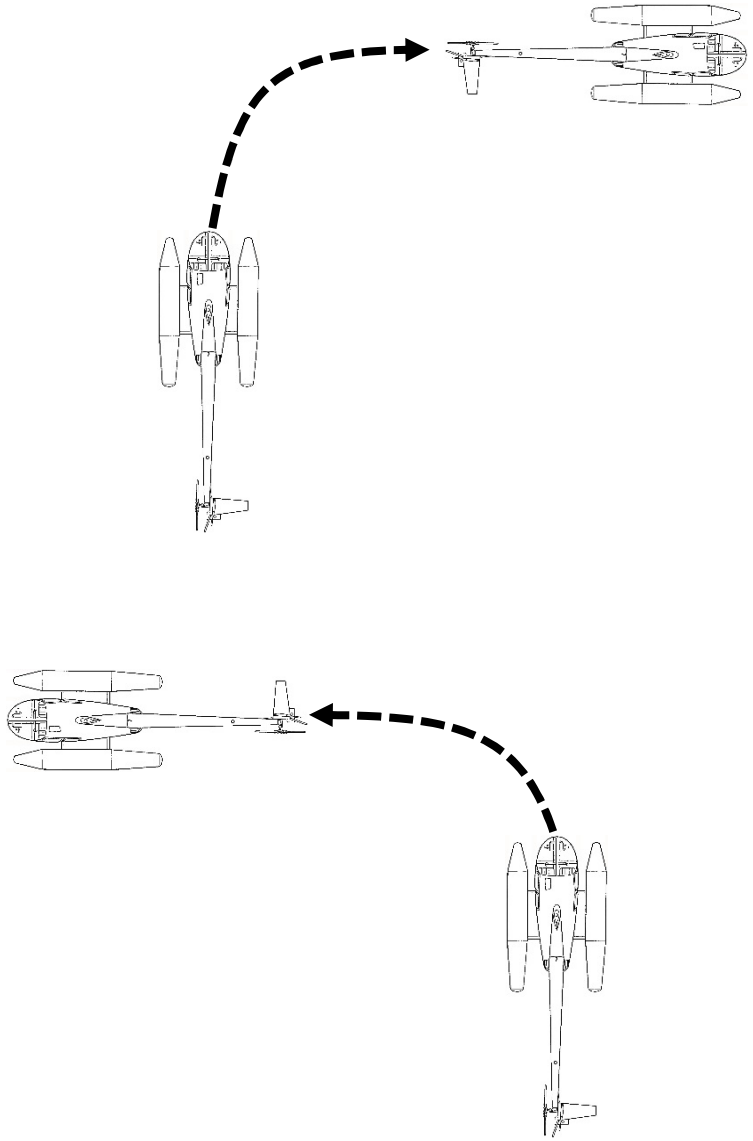
Exercise 9 – Turning

Aim: To learn how to turn at a given speed,

T.E.M.: Lookout, Carb Heat, T's & P's, Direction, Control Handover



Turn Left and Right (15º Angle)

ENTRY

- LOOKOUT & HORIZON
- Roll into turn – Cyclic
- Adjust Power – Collective
- Balance – Pedals

WHILST IN TURN (REPEAT)

- 80% Outside – 20% Inside
- Check ASI
- Check VSI
- LOOKOUT & HORIZON
- Speed – Cyclic
- Level Flight – Collective
- Balance / Yaw - Pedals
- THINK - Adjust

EXIT – WINGS LEVEL

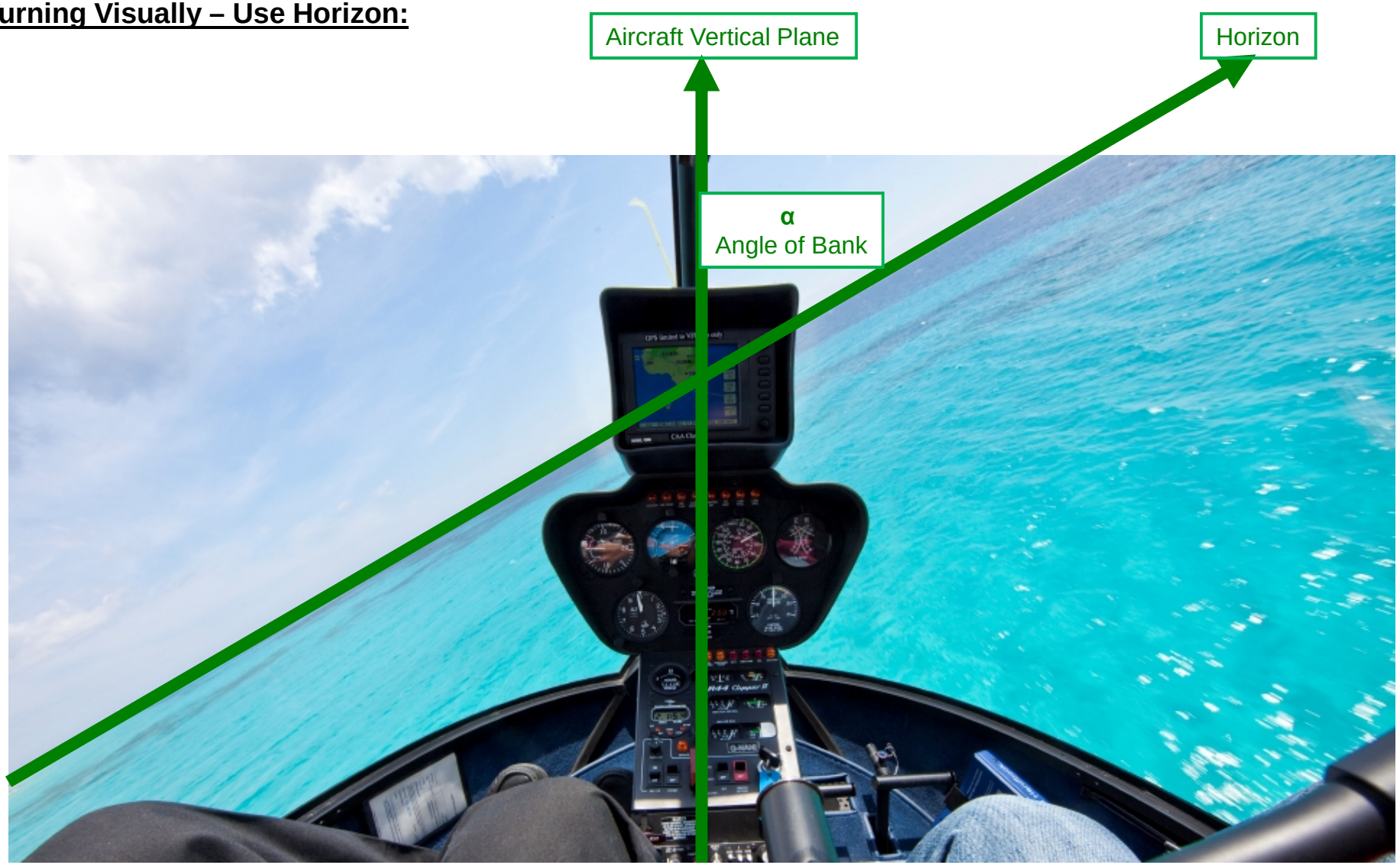
- LOOKOUT & HORIZON
- Anticipate heading required
- Roll wings level – Cyclic
- Adjust Power for S & L – Collective
- Balance – Pedals

Exercise 9 – Turning

Aim: To learn how to turn at a given speed,

T.E.M.: Lookout, Carb Heat, T's & P's, Direction, Control Handover

Turning Visually – Use Horizon:



Exercise 9 - Turning

Aim: To learn how to turn at a given speed,

Instruments

Artificial Horizon

15º Angle of Bank
No slip

ASI
Airspeed Indicator
(knots)

Required speed &
stable

VSI
Vertical Speed
Indicator
(feet per minute)

Confirm ZERO
descent rate

E & R Tacho
(%)

Engine and Rotor
RPM
Stable 102%

Altimeter
(feet)

Confirm no
changing

Directional Gyro
(Degrees)

Turning

Manifold Air
Pressure
M.A.P.
(inches of
mercury)

Engine Power

Confirm within
limits

Exercise 9 – Turning

Aim: To learn how to turn at a given speed,

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NOTES:

- Cyclic is a RATE control, gentle movements
- Offset Seating – pilots tend to dive right & climb left
- Climbing Turns: R.O.C. decreases
- Descending Turns: R.O.D. increases

COMPASS

The Compass suffers from turning errors, in the Northern Hemisphere when turning onto heading you should:

- **U**ndershoot
- **N**orth
- **O**vershoot
- **S**outh

Acceleration Errors:

- **A**cceleration
- **N**orth
- **D**eceleration
- **S**outh

DIRECTIONAL GYRO

- Does NOT suffer from turning errors
- More accurate when rolling wings level
- Suffers from WANDER
- Needs to be updated in flight – cross reference with Compass when flying level
- Electrically driven
- **RED FLAG** indicated that it is unserviceable

Exercise 9 – Turning

Aim: To learn how to turn at a given speed,

T.E.M.: Lookout, Carb Heat, T's & P's, Direction, Control Handover

PPL (H) Test Tolerances & Standards – Document 19H

PPL (H) TEST TOLERANCES

HEIGHT:	+/- 150 ft
HEADING:	+/- 10°
SPEED:	+/- 15 KTS

SECTION 4:

(b) Climbing and descending turns to specified headings

- *Establish climb/descent and rate 1 turns onto nominated height and headings*
- *Control helicopter altitude, and heading using visual attitude flying techniques*
- *Maintain directional control and balance throughout*
- *Complete all necessary checks and drills throughout*
- *Maintain lookout throughout*

Turning – Common Errors

- LOOKING INSIDE TOO MUCH – Use the outside horizon and visual clues.
- Chasing the instruments – this happens when you look inside too much!!!
- Balance & Yaw – do not use pedals to turn helicopter