



VIRGINIA FLIGHT SCHOOL SAFETY ARTICLES – NO 03/05/07

EFFECTIVE SCANNING TECHNIQUES

INTRODUCTION

The number of AIRPORXES reported at VFS is a cause for concern and could very easily impact on organizational safety. One of the interventions decided upon by the Safety Section at VFS was retraining in Effective Scanning Techniques while airborne.

BAD HABITS

The starting point for effective scanning while flying in order to register and recognize other aircraft in close proximity to you in the airspace you are occupying is getting rid of bad habits. Here are four common bad habits contributing to ineffective lookout whilst under VFR flight conditions :

- Failing to lookout – fixation inside the cockpit.
- Glancing out at irregular intervals and mistaking this for good lookout.
- Looking outside but not focusing.
- Looking outside but not registering/recognizing other aircraft in proximity to you.

THE STARTING POINT FOR GOOD LOOKOUT

Air traffic density varies according to what phase of flight you are in and where you are located in any particular airspace at a specific time. You must be aware of potentially increased traffic density and as a pilot sensitize yourself to these conditions. This will enable you to take timeous avoiding action if necessary. Exercise the following procedures during the respective flight phases :

- Circuit area – Increase traffic density. Be aware of the possibility of other traffic making improper pattern entries/exits.
- Descending and Climbing – make gentle turns to give better area scanning coverage.
- Final Approach – Avoid fixation on touchdown point – continue scanning.
- General Flying – Use effective scan patterns and execute inspection turns prior to Commencing unusual exercises such as spinning.

AREAS OF FOCUS

Research has shown that the best areas to scan, whilst allowing for overall focus on the flying task at hand, is 10° up and down of your flight path and 60° either side of the centerline of your aircraft. See Fig 1.

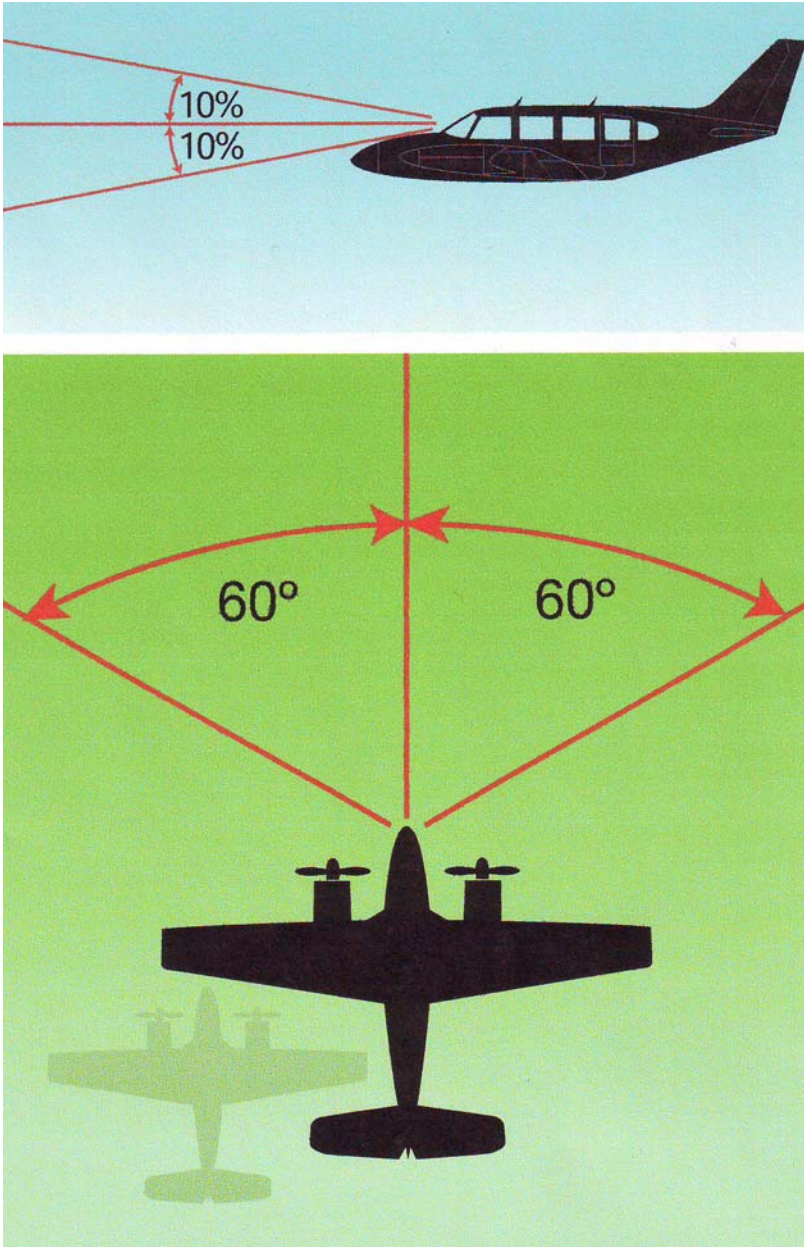


Fig 1

SCAN PATTERNS – BLOCK METHOD

The “BLOCK” scan method uses a series of eye fixations at regular points in space. The fixations become a focal point of your field of vision – a block $10^0 - 15^0$ wide. The scan method is as follows :

- Start at the far left of the field of vision and sweep methodically to the right, stopping for ± 2 seconds to allow for eye focus and recognition in each block $10^0 - 15^0$ wide. You will have ± 9 blocks in your scan.
- After each complete scan pattern, return to the aircraft panel for ± 3 seconds and then repeat the scan pattern. See Fig 2.

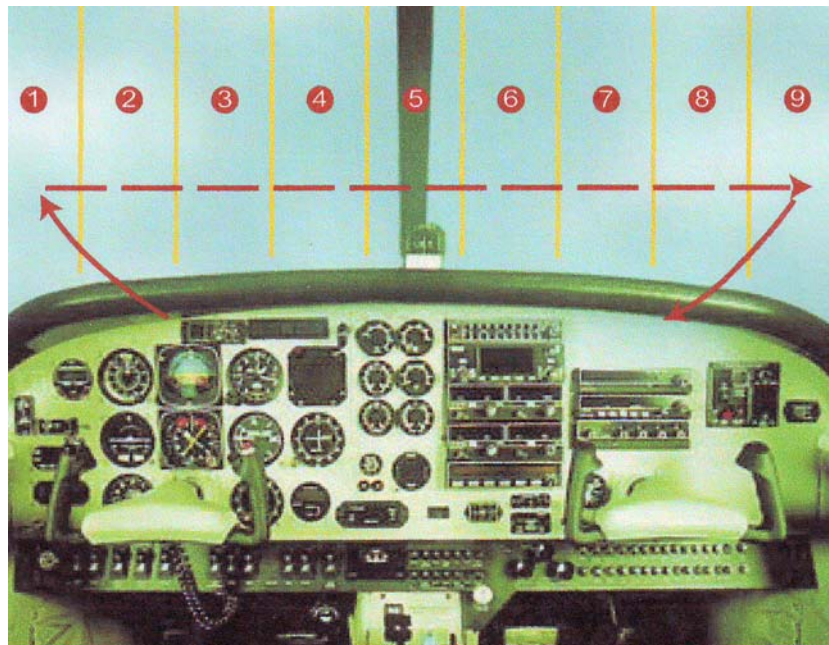


Fig 2

SCAN PATTERNS – PANEL METHOD

The “PANEL” scan method uses the same principle as the block scan except the pilot refers to the panel more often. The scan is also divided into “blocks” $10^0 - 15^0$ wide. This scan method is as follows :

- Start at the aircraft centerline and scan to the left in blocks $10^0 - 15^0$ wide.
- Return to the aircraft centerline and scan the panel.
- Start at the aircraft centerline and scan to right in blocks $10^0 - 15^0$ wide.
- Return to the aircraft centerline and repeat scan pattern. See Fig 3.

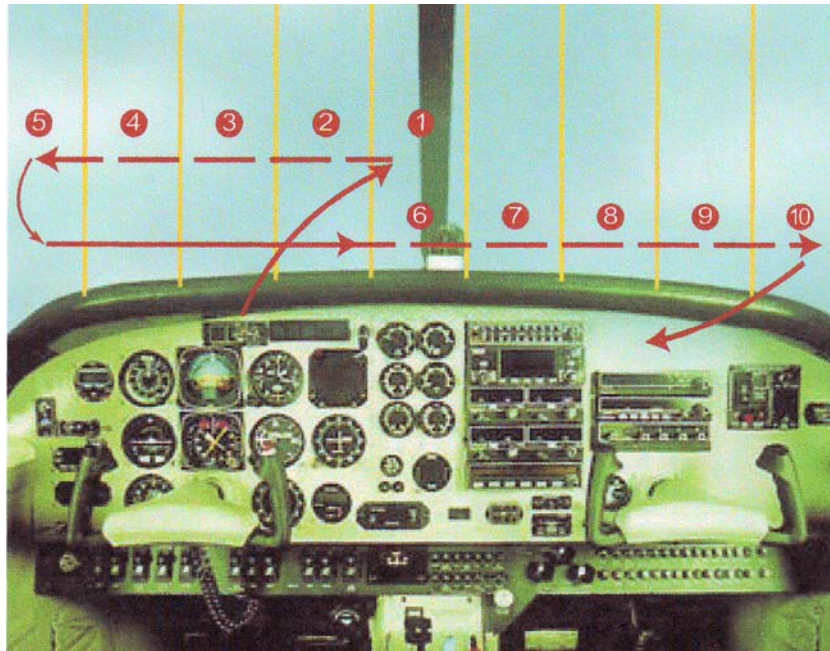


Fig 3

CONCLUSION

In conclusion bear in mind the following points :

- You have to fixate at regular intervals to focus and register.
- Constant motion blurs vision and the mind will not register targets.
- External scanning and collision avoidance is part of the pilot's responsibility.
- With regard to general VFR flying your time division between head "inside" and head "outside" the cockpit should be :
 - 3 seconds inside the cockpit; and
 - 17 seconds outside the cockpit.
- Your lookout scan is combined with the actual flying of the aircraft in VFS conditions e.g. aircraft attitude with reference to the horizon.

KEEP A GOOD LOOKOUT! AVOID A MIDAIR!