

# PPL (A) Exercises 12; 13 : In the Circuit

## East Midlands Airport, UK (EGNX)

By Nick Ross, [www.proviation.co.uk](http://www.proviation.co.uk)

This document is written as a guide to circuit procedure, with training for circuits taking place at EGNX. Altitude in the circuit is 1000ft.

*The document is written as a basic guide only. Circuit procedure will vary greatly from place to place, as will recommended operating speeds, local air traffic procedures, etc. See your instructor or pilots operating handbook (POH) for your aircraft type. Appropriate checklists supplement the various stages of flight.*

The aircraft featured is the Cessna 152, and the pictures are from Microsoft Flight Simulator. In use is a right hand circuit for Runway 27.



Clearance for circuits is required prior to departure; follow the 'booking out' procedure, generally by telephone around 20-30 minutes before departure.

### Take Off and Climb-Out

Check runway clear and flaps set as required. Lifting weight off the nose wheel at full power and 60 knots, the Cessna 152 rotates at 65 knots into the climb. Climb attitude is that sufficient to give a best climb rate of 65 knots.

Monitor instruments throughout the climb and maintain a positive lookout.

Abeam the end of the runway, a look out to the right to identify a point 90\* to the runway is necessary. Ensure clear of traffic. On identifying a feature, a climbing turn to the right is made, tracking towards this feature whilst maintaining 65 knots. We are flying perpendicular to the runway, on a northerly heading. (Figure 1)



Figure 1- Cruise Configuration. Note 1000 Ft and North. RPM set to 2200RPM- (or equivalent cruise power for aircraft).

## Cruise

At 1000 ft level off, with the 'Attitude-Power-Trim' sequence. The level attitude is selected, speed increases and we trim for level flight as power comes back to 2200 RPM. This sequence of events should be well practised; a 30 degree bank-turn to the right needs to be made on reaching 1000ft (*figure 2*).



Figure 2- Level 30\* Bank onto East

This turn brings us parallel with the runway. Climbing to 1000ft at 65 knots has given an adequate distance from the runway, which is around one-third down from the wing in the picture viewed out of the right window. (*Figure 2*)



Figure 3- Note Position of Runway

In the cruise check **F**uel Quantity; **R**adios; **E**lectrics; **D**irectional Indicator; and **A**ltimeter (FREDA) as well as monitoring engine oil temperatures and pressures. Mixture is set rich, and carburettor heat cold.

Being parallel with the runway, and maintaining this heading (correcting for drift), we are on the downwind leg. At this point it is necessary to call East Midlands Tower; for example;

**Aircraft:** Cessna 05 Downwind, for touch and go/to land (full stop)

**Tower:** Cessna 05, roger, report final number 2

The instruction above requires you inform the tower once the aircraft is established on final approach. Traffic information was also passed in this transmission; “number 2” tells us that there is traffic ahead of us to land.

The Tower will then request a call on finals, or issue other instructions, such as call on base leg, or request you orbit present/designated position due to landing traffic, etc.

On each leg it is necessary to keep up a constant visual scan for traffic. The zone, particularly the circuit is a busy place to be, both in terms of traffic, and cockpit activity. External as well as internal instrument scans are imperative.

### **Base Leg**

Near the end of base leg, the touchdown point is to be recognised. This is the aiming point. Abeam the end of the runway, a 30\* banked turn through 90 degrees (thereabouts) is made to bring the aircraft perpendicular to the runway on a heading of South.

At this point we start the descent. Carburettor heat is set hot, and power reduced to 1500RPM whilst maintaining altitude, bringing the power back to within the white arc, our safe flap extension speeds. Lower two stages of flaps and trim for the approach. Check approach to the runway is clear.

## Finals

The turn for finals should become more accurate with experience, with an initial tendency to turn too early and then over correct, or turning too late, and again over-correcting. The aim is to be established on an accurate approach path, with the aircraft flying a flight-path down the runway centreline, with the touchdown point

At this point we call tower, if this has been requested, and report final. The tower will then issue landing clearance.

Keeping the touchdown point constant in the windscreen ensures the aircraft will touch down at this point. We make corrections with the rudder to counteract yaw as well as keeping the aircraft tracking down the centreline. If the touchdown point rises in the window, the aircraft will be descending too quickly and will undershoot. Too high, and we will overshoot the mark.

To maintain this constant approach, use a 'point and squirt' technique, using the throttle to control rate of descent. Applying power will slow the descent, whilst power to idle will increase it. Continuously flick between eyeballing your nominated touchdown point, monitoring the approach path; and the airspeed indicator. Strictly apply 70 knots and monitor.



*Figure 4-* Keep the touchdown point constant in the window using power adjustments. Don't let speed fall-off completely however! (Spot the error- speed is not appropriate in this picture!)

We wish to land with minimum airspeed; so set idle power accordingly. As the aircraft approaches touch-down, we round out, keeping the end of the runway fixed in the window as the aircraft loses speed and lift and settles. As the aircraft settles, the nose is raised; flare the aircraft and hold, landing on the main wheels. As the nose wheel touches down, flaps are selected up, full power applied and carburettor heat set cold. The whole process is then repeated!

