The CPL Skill Test

Introduction

Over the past few years I've carried out an increasing number of CPL Skill Tests and PT3/4 tests. I'm now at the point where I feel I can give some meaningful feedback that is designed to help test applicants in the future, in the same way that I've been doing for IRT applicants over the past 20 years. The primary information document remains the UK CAA's Standards Document 3 which all CPL candidates should read thoroughly. This briefing is written to complement the information in Standards Document 3 rather than to contradict any of it. CPL Skill Tests carried out for the issue of EASA licences in the UK by dual-rated examiners will probably follow the standard UK format. Almost all SE tests are conducted on the Pa28R and almost all ME tests on the Da42; these notes will relate primarily to tests in those aeroplanes. The content of the CPL ST is only slightly different from the PPL ST; the big difference is how the candidate is expected to manage the flight and display appropriate airmanship.

Before the Flight

Many examiners will be happy for the candidate to contact them before the test to get weight and callsign information. The examiner may also ask for circuits to be booked at a particular airfield. Candidates should use this information to guide their study of the AIP and charts to familiarise themselves with the likely VRPs to be used, any noise abatement requirements, frequencies and declared distances. Examiners should not give the candidate the navigation route before the day of the test.

Pre-flight Brief

Briefing Time. The examiner will have previously agreed a briefing time with the candidate. The examiner will expect the candidate to be fully ready at the agreed time – just as one would expect a commercial pilot to be.

Paperwork. The examiner will need proof that the candidate is ready for test. They will need to see:

- A CPL course completion certificate (CAA5008 or ATO specific)
- Proof of theoretical exam passes
- A night rating in the candidate's licence or an appropriate course completion certificate
- An IR in the candidate's licence or a BIFM certificate if reduced hours are being claimed
- An MEP class rating in the candidate's licence or an appropriate course completion certificate (if the CPL ST is being flown on an MEP aeroplane)
- Logbook evidence of the hours claimed
- A Class 1 medical certificate (need not be in-date)
- Photo ID

A well-prepared candidate, with the help of their ATO, will have all of these documents ready for the examiner on their arrival. Examiners will cancel tests if they cannot confirm that all of the pre-requisites have been met. This is especially critical for EASA tests.

Candidate Brief

After the examiner has given their brief, the candidate will be expected to brief the examiner on mass and balance, performance, weather, NOTAMS, the aeroplane and TEM. The candidate brief sets the scene for the day. A poorly given brief, with incorrect or missing information will not give

the examiner a good impression of the candidate. A very poor brief may even prompt the examiner to abandon the test.

Mass & Balance. Electronic M&B calculations are acceptable, but candidates should expect questions like "If I bring another passenger, how will that affect the M&B?". For the Da42, the best M&B presentation is a parallelogram based on take-off mass with anti-icing, planned landing mass, zero-fuel mass with anti-icing, zero-fuel mass without anti-icing, planned landing mass, take-off mass without anti-icing. If all of the parallelogram is within the C of G envelope then all combinations of fuel-burn and anti-ice use are catered for. Any kinks in the lines suggest that there is an error in the calculations! When flying a Da42 TDI or GFC700, attention needs to be paid to max landing mass (1700kg unless OÄM 42-195 has been incorporated). Very few Da42s have this modification. The examiner may ask how long it will take to burn the fuel down to max landing mass.

Performance. Take-off and landing safety factors must be included. Examiners will normally expect Part-CAT factors to be used, and comparisons made with TORA and LDA. However, if the school's Operations Manual requires different factors and comparisons, then these should be used, especially if they are more restrictive than Part-CAT. Although it is not clear from Diamond's DA42 TDI and GFC700 checklists, the POH states that V_R, V_X and V_Y change at and below 1700kg. Performance graphs for masses below 1700kg are based on using these lower speeds. Performance calculations done on the <=1700kg graphs are worthless if the >1700kg speeds are used. Some candidates over-brief performance, with calculations based on home-base, circuit airfield and another diversion airfield. It is only necessary to do the calculations for the most restrictive airfield. For example, with Gloucester as home-base, circuits at Coventry and a diversion of Kemble, performance for take-off and landing at Gloucester is sufficient.

Weather. Candidates will normally brief using the Met Forms 214 and 215, and so an understanding of the symbology etc on the F215 is essential. The brief should include the most recent TAFs and METARs; a phone or tablet is quite acceptable for briefing these. Printed METARs a couple of hours old are of no use. Candidates should know what words like CAVOK and TEMPO actually mean.

As well as giving a weather brief, the candidate must make the decision on whether the test can go ahead in the forecast conditions. You need to think about the cloud base necessary for the navigation exercise plus the airwork and the engine shut-down (if testing on an MEP). Airwork and the shut-down can be flown above scattered, or even broken, cloud as long as VMC are maintained and controlled airspace is not an issue.

NOTAMs. NOTAMs can be briefed using the AIS site or 3rd party software. Where an activity, like parachuting, is intermittent and a phone number is given in the NOTAM, candidates should consider calling to find out the programme of activity.

Aeroplane Documents. The examiner will expect the candidate to take them through the aeroplane documents and should ask them to explain the Release to Service. Candidates should be able to point out limiting dates and aircraft hours, including OOP items. Candidates should know how to check the other aeroplane documents such as the C of A, ARC, radio licence, certificate of insurance and noise certificate. They should also know which documents must be carried on a flight within the UK.

TEM. The examiner will expect the candidate to have considered the possible threats during the flight; these should include, but are not limited to, weather, controlled airspace, terrain, other traffic.

Test Content

Section 1 – Departure

Pre-flight Check. The examiner is expecting to see a full, daily pre-flight check performed using the aircraft checklist in a generally expeditious manner. Unfortunately, some students give the impression that they have never done this before, again not giving the examiner confidence in their performance. You should expect some reasonably simple questions on the aeroplane: antenna identification, fuel capacity and burn rate, oil minimums, creep marks etc. Radio aids intended to be used during flight need to be checked after start. On the Da42, the 'Fuel Remaining' can be reset to match the fuel tank indications; on aircraft with Aux Tanks, hitting 'Reset' will set the fuel to 79.4 gal and the 'Dec' button will need to be used to set the correct fuel. With 25/25 gal indicated in the main tanks, 49.4 gal should be set, not 50.4 gal. There's a way to remove the '.4', but it's fiddly!

Passenger Brief. The examiner is expecting a full 'passenger brief' – a cue card can be used. It is worrying that many candidates do not know about the emergency exit in the Da42.

Airfield Departure. The navigation section is usually flown first. Leg planning should normally be direct from the airfield, but a remote start point may be acceptable if it is generally in the direction of the first leg. If a remote start point is used, the candidate needs to have a plan to navigate to it!

Section 2 – Airwork

Whilst the examiner will be responsible for navigation and ATC liaison during this section, the candidate is responsible for lookout (except for the IF exercises). Candidates, especially those who have recently passed their IRT, often have to be reminded of their responsibility for lookout.

Stalling. The candidate is responsible for HASELL checks; the examiner will expect full checks between each stall. Excessive height loss can be a problem during the incipient stalls; this is minimised if the stick/yoke is moved forward only enough the remove the first signs (stall warner or buffet). Stall warners can be unreliable and candidates should be ready to recover at the first indication of buffet. The recovery is not complete until the aeroplane is stabilised in a clean climb.

Section 3 – Navigation

Lookout. Again, lookout is often lacking, with the candidate's head fixed in the 12 o'clock position for most of the navex.

Autopilot. The autopilot may not be used during any part of Section 3.

Navigation Technique. Candidates are expected to use a 'recognised method of navigation'. This may be 'standard closing angle', 'track error plus closing angle' or a host of other methods. Whilst 'track crawling' is not expected, there is no prohibition of identifying a feature halfway along track and manoeuvring the aeroplane to pass it on planned track; obviously, a subsequent small correction to heading may also be necessary.

Diversion Leg. Terrestrial radio aids may be used during the diversion leg (but not for tracking). Rather than taking a series of running fixes, it is often more useful just to calculate the radial and range of the diversion destination from a suitable beacon and use that information for confirmation that you've arrived at the correct position.

Tracking. If an HSI is available for the tracking exercise, it does not matter which end of the CDI pointer is put on the required radial, although there is 'best practice' for this. The important thing is

to look at the to/from arrow to understand whether you are flying towards or away from the navaid. Setting the HSI up is frequently not done well or speedily.

Fixing. The fixing exercise will be done 'under the hood'. Candidates should have a suitable plotting tool – and know how to use it; a decently folded map is also helpful. During the plotting of the fix, the aircraft will be moving. Ideally the candidate should start the stopwatch as soon as the fix is taken so that they can add the aircraft's track progression to the fix plotted on their map.

Section 4 – Approach and Landing

Arrival. If the candidate has been responsible for navigation up to the point the arrival starts, then the examiner will have briefed them that the next activity will be the arrival at their remote airfield and they can have made some preparations already. If the examiner has been responsible for navigation, the candidate can expect to be briefed on current position and ATSU before starting the arrival. Examiners will normally leave the candidates around 10nm from their destination airfield and close to some readily identifiable ground feature. GNSS, if fitted, may be used, as may the autopilot if the candidate has been trained to use it. Examiners will be expecting a 'commercial arrival' unless the ATSU requires an overhead join. Unfortunately, a lack of pre-flight study can result in the candidate failing to find the airfield or approaching the airfield in an unsafe manner.

Circuits. Candidates are expected to use their judgement and good airmanship to get the circuits done in an efficient manner; perpetually getting too close to a slower aircraft and having to go around is not 'commercial'. Candidates whose home base has a full ATC service should know the differences in control and terminology if their circuits airfield has a FISO service, and vice-versa.

Touchdown Point. If PAPIs (or equivalent) are available, the examiner will expect touchdowns to be made abeam them unless the candidate indicates otherwise – for example, for a glide approach or for a 'short-field' landing (if scheduled in the POH).

Glide Approach. Not everyone gets the glide approach right first-time. A decision to go around from an unsuccessful approach will probably be rewarded by another chance to fly the approach. Examiner intervention at a late stage to prevent a landing in the undershoot or two-thirds of the way down the runway will result in a failed section.

Touch-and-go Landings. Almost all candidates are used to flying touch-and-go landings. Some instructors will have operated the flaps on the runway, others will not. The examiner will be prepared to operate the flaps if the candidate wants that. However, they will expect to be told to move the flaps rather than doing it unbidden. The go-stop decision is also the candidate's.

Section 5 – Emergency Handling

System Failure. At any stage of the flight the examiner may announce a system failure, either by saying that a caption has illuminated or by giving a set of symptoms. Drills for the failure will be touch-drills only. Candidates are strongly encouraged to use a checklist to deal with the problem unless time is critical; the autopilot may also be used. Sometimes it is apparent that the candidate does not know their way around the checklist or has no idea of the layout of the c/b panel. If the checklist ends with the words 'land at the nearest airfield' or similar then the examiner will expect a simulated 'PAN PAN' call to be made.

Fire. In ME aeroplanes this may lead to a live shut-down and restart. For SE aeroplanes, the fire may be a simulated engine fire or cabin fire (and could be initiated by the examiner during taxy in or out). In any event, initial actions should be prompt and from memory. After taking the appropriate

actions, the candidate should be asking the examiner “has the fire gone out” and should act accordingly.

Forced Landing (SE only). The forced landing will be initiated by the examiner who will list the symptoms (eg fire, engine fail with no obvious reason, engine fail after catastrophic failure). Candidates are expected to take the appropriate actions. As well as checklist items, candidates should brief their ‘passenger’ accordingly. A field must be nominated, although changing the field once is acceptable. Reminding the candidate to warm the engine is the examiner’s responsibility, although candidates can initiate this if they remember; a ‘tactical engine warm’ initiated by a candidate who is low on the glide may be curtailed by the examiner!

EFATO (SE only). Whilst aircraft control is the primary concern, candidates are expected, as a minimum, to carry out essential checks, like turning the fuel off, and telling the passenger to brace.

Section 6 – Asymmetric and Class Rating Items

EFATO. Most failures come from poor attitude control leading to a significant decrease in speed and loss of heading control, rapidly followed by examiner intervention.

Asymmetric Circuits. Whether the intention is to go around at ACA or to land, candidates must put the aeroplane in a position from which a safe landing would be possible. On the circuit to land, going round from ACA because the conditions for a landing aren’t met will probably result in being given another asymmetric circuit. Continuing beyond ACA when high, fast, mis-configured will result in examiner intervention and a failed section. Some candidates do everything correctly on their planned asymmetric go around and then, when faced with an unexpected asymmetric go around, incorrectly revert to symmetric go around techniques.

Shut-down and Restart. This exercise will usually be initiated from a simulated engine fire. The shut-down should be carried out from memory and all of the levers and switches should be moved to their emergency positions. Once the engine has been secured, best practice is to confirm from the checklist that all actions have been taken. Either a starter-assisted or a windmilling start may be used in a Da42, although some examiners may specify the type of restart they require. Some schools will want a period of running at low power for engine husbandry purposes both before shutting an engine down and after restarting it– this is quite acceptable on test. For aeroplane types where practice shut-downs are restricted by the manufacturer in the POH, the airborne shut-down and restart will be carried out using touch drills only. A further shut-down and restart using real drills will need to be tested by the examiner in an FNPT2.

Rejected Take-off. A rejected take-off is part of the test for both SE and ME aeroplanes. It may be planned for the start of the flight or at the end. In any event, the examiner will make clear what is required. The most common errors are excessive use of the brakes and not knowing what to say to ATC. Candidates should use common sense regarding which emergencies require stopping on the runway and which can be dealt with after vacating the runway.

Conclusion

A candidate is more likely to pass the CPL ST if they operate in accordance with their Operations Manual, fly accurately, show good airmanship throughout, are assertive and don’t vacillate.

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