

PREPARING FOR THE PPL/LAPL SKILL TEST

AIM OF THIS DOCUMENT

This document has been prepared by the Devon & Somerset Flight Training to ensure that School candidates for the basic EASA PPL/LAPL Skill Test will know what to expect on that all important day. The Civil Aviation Authority (CAA) Standards Document 19, Notes for the Guidance of Applicants taking the Skill Test for the PPL/LAPL (Aeroplanes) is the official document which should be read by all candidates. However, it cannot contain any local information, hence the need for this School document which will provide a little local colour and hopefully convince the student pilot that there is nothing to fear from a test flight with the Flight Examiner.

BEFORE TAKING THE SKILL TEST

Candidates must have completed all the requirements for the PPL/LAPL i.e. all the flying training including the qualifying cross country, and all the examinations including Radiotelephony. The Pilot's Flying Log Book must be completed up-to-date.

AIMS OF THE TEST

The official aims of the test are outlined in CAA Document 19. What should be appreciated is that a licence is needed to permit the carriage of passengers and to allow the pilot to operate, if necessary, away from a protective training environment. That is, the responsibilities are greater and before a person can be trusted to exercise those responsibilities the pilot's abilities and knowledge have to be carefully examined. It should be realised that the examiner is looking for proof that the candidate is equipped not only to fly the aircraft safely but has the knowledge and determination to make the right decision if things go wrong. This last is particularly relevant to weather: it is more important to know 'when not to go' than it is to know 'when to go'.

TEST FORMAT

The test will normally be on a School aircraft of the class/type that has been used on the course. Private owner's aircraft may be used provided the CAA requirements are met. Basically, the Skill Test comprises the following sections and is intended to be flown as a single flight in the order stated. The section number references have been taken from the CAA Standards Document.

- All pre-flight actions and departures (CAA Section 1)
- En route/navigation (CAA Section 3)
- Airwork (CAA Section 2)
- Abnormal and emergency operations (CAA Section 5)
- Approach and landing procedures (CAA Section 4)

Alternatively, as the time for a single flight Skill Test covering all the pre-flight procedures, the flight, and the post-flight procedures can take up to 4 hours or more and/or the weather may not be totally suitable it is permissible to take the test in two parts as follows:

En-route/navigation comprising: Section 1 in full
Section 3 in full
Section 4a), b), & h)

Skill Test less En route comprising: Section 1
Section 2
Section 4
Section 5

The test Sections are spelled out in great detail in the CAA Standards Document 19 as already mentioned. It will be seen that in the event of the test being split into two flights some of the essential procedures will have to be carried out on both flights. The diagrams overleaf, it is hoped, will illustrate the options.

STUDENT PREPARATION

As mentioned previously, students must read the CAA Standards Document 19 as soon as the Skill Test revision stage is reached so that the test requirements can be learned and practised in good time. The CAA document is extremely comprehensive and may tend to over-awe some students - that is another reason for preparing these notes. Students should remember that Examiners do not like failing candidates. So long as a student has learned everything he or she has been taught on the course and aims for a high standard then all should be well.

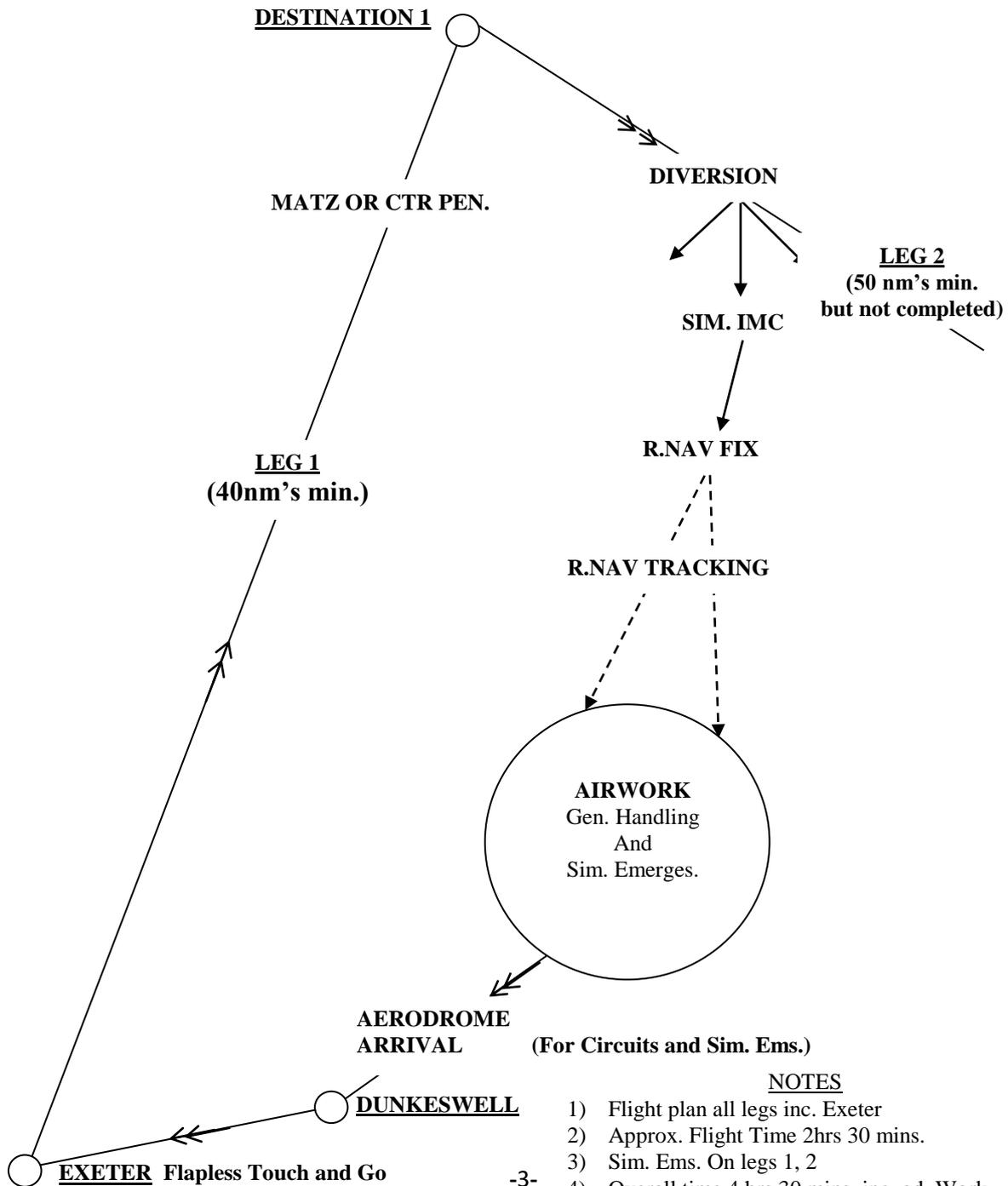
There are no traps or catch questions. The student merely has to demonstrate ability to fly the aeroplane responsibly and sensibly - and above all demonstrate good airmanship. Finally, the paperwork aspects must not be overlooked. The 'ship's papers', weight and balance schedule, and flight manual for the aircraft concerned must be studied. To assist the student in this task the School has made available a comprehensive list of aircraft technical questions that could be asked during the aircraft technical oral examination.

ARRIVING FOR THE TEST

Candidates are advised to arrive in good time for the test and to equip themselves with all the necessary navigation equipment, headset(s), IMC visor or goggles, aircraft check list etc. In the case of a test during which the En Route Section is to be flown the candidate is advised to arrive approximately one and a half hours before flight departure time. Finally it makes sense to have studied the weather so that you will have a good idea as to its suitability for the test to be flown.

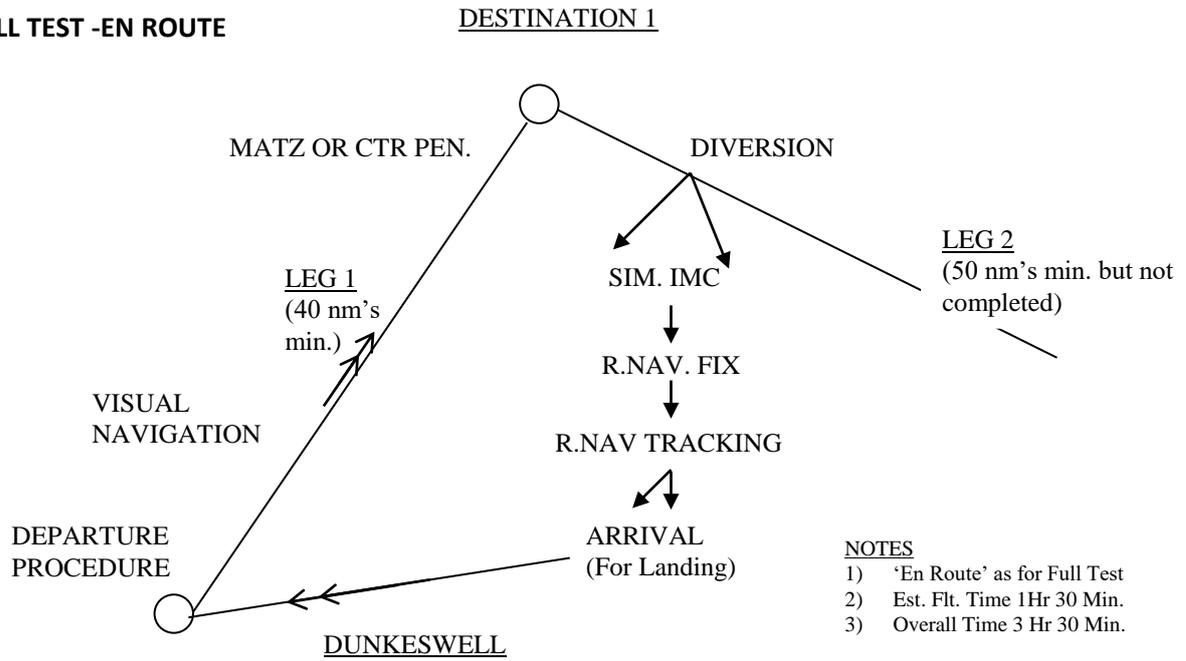
Remember: The information on the following pages is written for you the student and the advice given, if followed, should ensure that you pass the test with flying colours. During your Skill Test Revision do fly the aeroplane as if you are already on test. If you do that, the test won't be too demanding.

PPL SKILL TEST - SINGLE FLIGHT
TYPICAL FORMAT

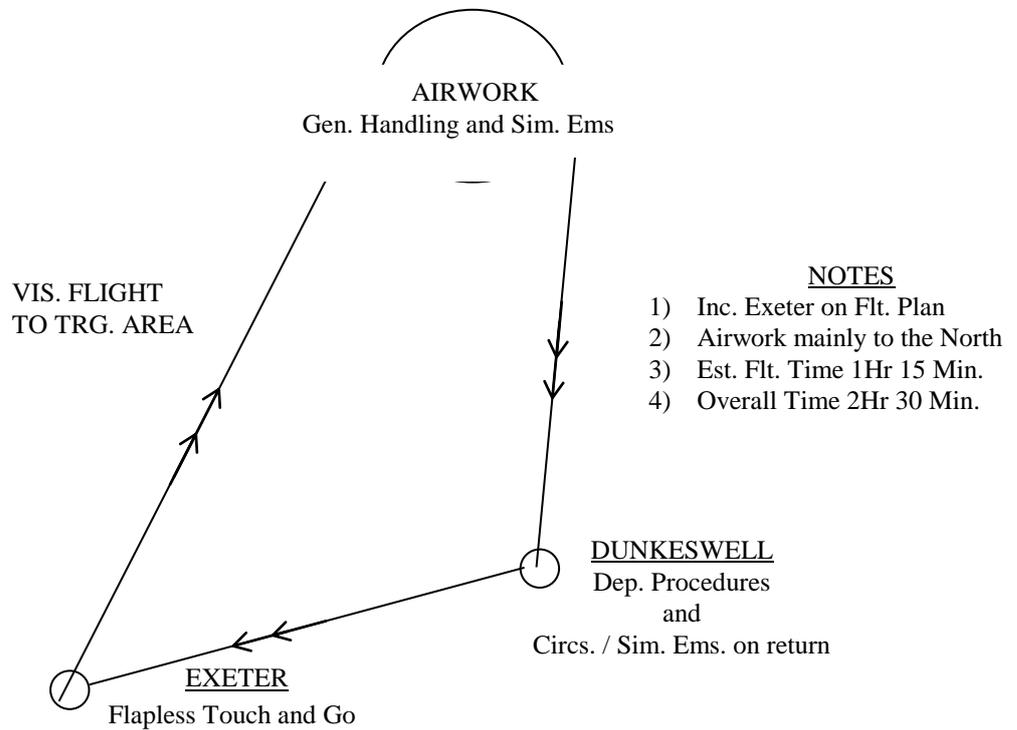


PPL SKILL TEST - TWO SEPARATE FLIGHTS

SKILL TEST -EN ROUTE



SKILL TEST - LESS EN ROUTE



PRE-FLIGHT AND DEPARTURE

THE INITIAL BRIEFING

This will be as described in Standards Document 19 so there is little point in repeating it all here. Basically, it will cover your suitability for the Skill Test which will be apparent from your Student Records and log book; a discussion on the coverage of the test and weather suitability; a check that you have all the necessary equipment, check list(s) etc.; and finally, instructions re flight planning and self-briefing plus the time that you are to be ready for the final briefing. Don't forget that during the pre-flight planning you will be required to prepare weight and balance and performance calculations for the aircraft concerned.

During the initial briefing remember that first impressions do count. So don't be over-awed by the Examiner. Just demonstrate a quiet confidence that shows you know what aircraft captaincy is all about. Furthermore it will also create a good impression if you are tidy in your dress.

STUDENT FLIGHT PLANNING AND SELF-BRIEFING

You will have done this all before. Being on 'home' ground you will know where to find all the information: weather data, AIP information, Notam Bulletins, aircraft documents, Flight Manual etc. To assist with the calculations of weight and balance, and performance, you can use the School's pro-forma. The layout may help. The main point to remember is that your paperwork, especially the navigation flight plan and log must be clearly legible, and preferably written in capital letters. This will not only simplify matters for the Examiner but will make life easier for you in the air.

THE MAIN BRIEFING

This will take longer than the initial briefing. It will cover the following points:

Purpose of the flight

You will be reminded of the sequence of events for the flight - depending upon your chosen option and including a reminder as regards simulated emergencies. The Examiner will inform you that although he is captain he will in effect be acting as a safety pilot and that you, the candidate, are flying the aircraft and you will treat the captain as a passenger (to demonstrate that you are capable of earning your PPL). So you will be responsible for lookout, R/T, and navigation - except when the Examiner states otherwise e.g. during simulated IMC and when flying certain upper air exercises.

Use of Check list

A check list will be used on the ground. This means calling out the check list items as you action them i.e. 'say and touch'. In the air it will still be 'say and touch' but from memory, still using the check list sequence.

Planning Check

The Examiner will check your flight plan/log and the weight and balance and performance calculations and may well ask questions e.g. re calculation of any cross-wind component, decision re operating altitudes, calculation of fuel reserves etc. If your flight is to include a touch-and-go at Exeter don't forget to include this leg in your plan.

Simulating IMC

The Examiner will explain the procedure and that he will be responsible for lookout.

Aircraft Control

Aircraft operating speeds will be discussed, as will operating limits especially re speed, height, and heading. The latter are stated in the Standards Document 19. However, the Examiner will remind you not to be over-anxious: just fly the aircraft 'target' performance, as accurately as you can and if the aircraft 'departs' or wanders off, take instant action to correct the performance - don't consciously allow the aircraft to wander to the permitted limit and then initiate corrective action. That is not the way to fly the aircraft.

Similarly, if you make a mistake - don't let it affect your standard of flying - just correct it and get on with the flight. No one can fly an aircraft with 100% perfection. The Examiner will re-affirm that he is in effect a passenger and can help in minor ways only e.g. in the interests of safety. He cannot, of course, advise you how to operate the aircraft.

As regards aircraft operating speeds, you will normally use the figures quoted in the School training literature and/or the aircraft check list. If you wish to depart from these, you should say so at the time; for instance you might increase your final approach speed in view of the wind gradient and/or turbulent conditions.

Simulating Emergencies

Finally, the Examiner will explain his role - and yours - when you are given simulated emergencies. The best way is to take the necessary action, from memory, saying 'I have control' as appropriate e.g. during simulated engine failure. Then, it's 'touch and say' only using the check list as a back-up after you have taken the remedial action. The check list would not necessarily be used after a simulated engine failure during or after take off but would be used after coping with, say, total electrical failure. In fact, some pilots carefully leave their check list open at the Emergency page once they have completed their take-off vital actions.

The simulated engine failure or simulated engine fire scenarios will in all probability be tested during the second half of the Airwork section but other cockpit type emergencies could be given at anytime from engine start-up to engine shut-down. So, do remember this. You could even be given a simulated emergency whilst taxiing such as steering failure or brake failure.

Aircraft Documents

You will be asked a few questions on the aircraft documents and the technical log / authorization sheet. So be prepared. Know if the aircraft - on paper at least - is fit to fly; how many hours to the next inspection; are there any deferred defects etc.

Flight Briefing

The Examiner will then move on to the briefing for the flight itself. The depth of briefing will depend upon the flight being undertaken i.e. full Skill Test or a part Skill Test. The briefing will be detailed and will cover every exercise, including a check of your navigation flight plan and log. To avoid repetition and to simplify reading, the briefing information on the actual flying is combined with other detailed advice given in the following pages.

PRE-TAXY PROCEDURES

Aircraft External Check

The briefing complete, technical documentation signed, it will be time to walk out to the aircraft for the walk-round check and start-up checks. Don't forget the external check begins whilst you are some 15 - 20 yards away from the aircraft - your check list will remind you. You are to assume that this is the first flight of the day. Use the check list during the external check: don't forget to check the fuel visually, don't take over-long with your checks and do expect to be asked the occasional question. There is an outside chance that the Examiner might ask you to go out and carry out the external checks while he observes your actions from inside the School.

Pre-start, Start, and After-start

Having entered the aircraft do treat the Examiner as a passenger, albeit an experienced one. So do show that you know your responsibilities as regards passenger briefing. You have been taught what to cover so just get on and do it - you have to cover the routine and the emergency aspects of the flight - phrasing the briefing so as not to alarm the 'passenger' i.e. say 'in the unlikely event of' etc. Cover how to evacuate the aircraft in the event of a problem on the ground.

After the passenger briefing, using the check list, complete the whole of the start procedure taking care to 'say and touch' in a professional manner. For instance, don't wave vaguely towards the instruments, saying 'Instruments OK'. Point and look at each instrument in turn and state the condition such as 'No broken glass anywhere - ASI zero' or 'DI capable of being caged or uncaged (and do it); or altimeter setting knob OK (and check that it moves etc); or magnetic compass no bubbles, sensible reading etc. Be prepared for a question from the Examiner e.g. what to do if you have an engine fire on start-up or how would you shut-down the engine in the event of an apparent lack of oil pressure?

After concluding the after-start checks, if you intend using the Radio Navigation equipment, do check that as well, including listening out on the Exeter ATIS, if appropriate. When ready, make the radio call and prepare to taxi.

TAXY

First impressions count. So don't forget your pre-taxy checks, especially making a lookout check all round the aircraft. The sequence is: Lookout, close the throttle, release the brakes, lookout again, add sufficient power to move the aircraft, close the throttle, and a brake check. Restore 1200 rpm and invite the Examiner to check his brakes - 'You have control' etc. If you are very close to other aircraft you may have to modify the procedure - if you do, explain your actions. In a suitable area, preferably on a hard surface, carry out a standard instrument check - not forgetting lookout. Two faults you must avoid are taxiing too fast and using power against brakes.

Particularly if you are taking a test in a high wing aircraft such as a Cessna or in a tailwheel aircraft, the Examiner will be watching to see if you use the flying controls sensibly if the wind is strong enough to affect the aircraft. Finally, do know your taxiing emergency procedures? - mainly loss of steering or loss of brakes.

POWER CHECK AND VITAL ACTIONS

Points that the Examiner will look for are: aircraft parked tidily into wind for the check, with nosewheel central; a 'clear behind' check; brakes holding check; and an overall engineering approach to the checks themselves. All the checks are on the check list. You might be asked why earlier we do a dead cut check before the mag. check at the higher rpm in accordance with the check list; or you might be asked what to do if there is no mag. Drop.

In the case of PA28 aircraft do you know what to do if you forgot to change to the fuller tank for the power check? In addition, it is not a bad plan to declare 'Power check complete' when you have done - it sounds professional and it clears the mind for the next step: vital actions for take-off. The latter must be copy book! Say as you do. You could say afterwards 'Take-off checks complete' By the way, don't forget to check the Examiner's harness and door when checking - 'hatches and harness secure' - just as if he was a real passenger - and in subsequent similar checks.

TAKE-OFF AND DEPARTURE

It is likely that Exeter will be your first port of call, so assuming that you have included this leg on your flight plan/log do have it available so that you can extract the track heading and altitude plus any relevant radio frequencies. You could even set up the first frequency on Comm. 2 if the aircraft is so equipped. then it will be time to check all round the aircraft and especially the final approach before making the R/T call. You will almost certainly have to move the aircraft to do this - make sure that the Examiner can see what you are doing. It saves 'black marks'! If you are sure that you are still clear, line up, on the centre line, make the three brief pre-take-off checks, then go! During the take-off roll you know what to check - do so, making it plain what you are checking. At the correct speed rotate, ensure that you have safety speed, then climb for max. rate.

If there is an obvious cross-wind you should state your estimate of the component and take the necessary action before, and during take-off. In brief, this means applying aileron before the start of the take-off, adjusting it as the aircraft accelerates, delaying raising the nosewheel,

(to facilitate directional control), rotating positively at the correct speed, say 2 or 3k higher than normal, and immediately cancelling any drift, whilst the centre line is still visible. It is not a bad plan to note the DI heading as you climb away, adjusting it as you climb.

Assuming a departure for Exeter you will have to position the aircraft accordingly (i.e. North of the Exeter instrument approach path) making the appropriate R/T call to Dunkeswell, then to Exeter not forgetting to quote the ATIS ident. letter in your opening call. If you are not routeing via Exeter you can call Dunkeswell but remain on the local frequency until it is time to change.

Assuming that you have been directed to fly to Exeter for a flapless touch-and-go, on receiving joining instructions from Exeter ATC all you have to do is read back as necessary and comply with ATC instructions. Set up for a flapless approach and landing making routine circuit calls as normal. After the touch-and-go ATC will inform you which way to turn to clear the circuit. If you want to turn Right when using R/W 26 you must ask ATC.

Once clear, you might have to change to the Exeter Approach frequency and remain on that frequency until you are clear of the area. However, once you are clear do take the initiative to change from Exeter to your next en route frequency - don't wait to be told. If your next requirement is the En Route section then you will also have to position the aircraft so that you can set course on the first leg of the cross-country.

A word of advice. If you have to fly a cross-country from Exeter it might be better to flight plan the first leg from a point nearby rather than from the airfield itself due to the air traffic situation. It would ease the workload.

EN ROUTE SECTION

PILOT NAVIGATION

Flight Planning

You should not have had any problems with this - you have done it all before. If you wish, you could write in the log at the preparation stage reminders re R/T calls and FREDAL checks, or anything else you wish to remember. Make the flight plan/log work for you. Ensure also that you have a reliable time-piece plus spare pencils or biro's. At some time you could pointedly show the Examiner that you know there is a compass deviation card in the aircraft.

Setting Course Leg 1

Assuming the flight plan/log to be in good order the first priority is to set course, as far as is possible, precisely overhead the intended starting point - hence the previous mention of starting this section away from the airfield. There is no point in starting off track! Hopefully you will have got the R/T out of the way, so all you have to do is log the time and the first ETA making sure that you have the correct altitude and heading. In addition, cross-check that the DI agrees with the compass.

Then, after a few minutes, make what we call a gross error check. You do this by checking all round the aircraft to ensure that you are 'going where you should be going'. If you are not, then clearly you must do something about it.

Maintaining Altitude, Heading and speed

Accuracy of these features goes without saying - plus good lookout. Make frequent checks of the compass and DI to make sure that they are synchronised. Make sure before the test that you know the trick of flying accurately with minimum physical effort - one sure method is to fly with your feet to prevent yaw all the time especially if your aircraft is not equipped with rudder trim, plus accurate trimming in pitch. If you eliminate yaw the wings will normally stay level - if the wings stay level the chances are that the aircraft will not yaw. This leaves your brain, and your hands, free to concentrate on other things such as navigation and aircraft management. By the way, if you see another aircraft or other obstruction report it to the Examiner.

Map Reading

Your map should be orientated with the aircraft heading so that what you see on your map is a mini-version of what you see outside. If you take a line bearing from a feature outside the aircraft, and bring that to your map inside, this will greatly assist in identifying that particular feature. Assessing distances is not difficult if you assume that a typical aerodrome, such as Dunkeswell, is one mile across - all you have to do then is to look at the distant object, and see how many aerodromes you can fit in: 'one aerodrome, two aerodromes, three aerodromes' etc. and so guesstimate how many miles.

One last point, when pinpointing the aircraft position do not look out of the window and say 'that's where I am'. If you do, you will be wrong by a mile or two. The point that you are in fact over, is directly under the aircraft; so you have to look for it, or make due allowance.

Log-keeping

As the name implies, the log is intended to provide an accurate record of the flight, certainly the en route section of this particular flight. The fact that with pilot navigation you complete much of the log in advance clearly reduces the work load in the air. So the prime use of the log is to help you with the navigation. The log clearly tells you in advance what to steer, from where to where, and for how long. All you have to do is to enter the clock times and the ETA's for the various waypoints. Simple. On the other hand, if you have to alter any headings, destinations, or timings such as for

diversions, the log provides a convenient record for your use. Any untoward occurrence should also be logged.

Assessment of Track Errors

Although the Examiner does not want to see you 'track crawling', if you find during your gross error check or other checks that you have a track error, then you must alter the aircraft heading accordingly, taking care to log such changes together with any updated ETA's.

MATZ OR CTR PENETRATION

During the En Route Section you will be required to undertake a MATZ or CTR Penetration. You will, of course, be told during your briefing and will have the opportunity to prepare for it. You will have had time to note the procedures including R/T plus all the radio frequencies and the existence of an ATIS, if applicable. So - make sure your log has all the required information - that is what the log is for; you cannot memorize everything.

You will have done this all before. The principles are much the same for both types of penetration. Your request for clearance should be in your opening call and there will probably be an ATIS in the case of the CTR penetration. If you are not sure of the R/T it is a good idea to write out the typical calls on the back of your flight plan form. If you haven't got a good memory do write down the clearance, transponder codes etc that are passed to you to facilitate readback. One final point, it can be helpful, if during your flight planning, you use the relevant zone boundaries as way points on your flight log because it simplifies passing boundary estimates in the air.

LEG NO. 2

Firstly, ensure that you do overfly the turning point i.e. identifying same and making last minute heading changes - or arranging to turn the long way - to ensure an accurate start to the new leg. The drill is as before. Log the time and next ETA, turn, check compass and DI synchronised, R/T as required, and then after a couple of minutes or so, make a gross error check. Show the Examiner that you know what it is all about.

DIVERSION

Although the Examiner could give you a diversion at any time it is quite likely that he will do so once you are established on Leg 2. He will point to the required diversion position on your chart and will expect you to be able to assess your present position and then calculate the required heading, altitude as applicable, and time to run. You will be given time to make your mental D.R. calculations and will be able to use your protractor or any other home-made scales you may have available. For instance, you could draw a map scale on the bottom of your flight plan form. Clearly it is worthwhile marking the new track on your chart, both to help you with your calculations and to ensure that you are following your new track once you have altered course.

Making sure that your new track will not take you through a Danger Area or other Restricted Space. write down the clock time, the new heading (allowing for wind) and the ETA in your log and inform the Examiner. Your aim is not only to be correct in your calculations but to show that you can fly the aeroplane and think! So don't forget what has been said before - fly with your feet and the aircraft will remain on course while you are working things out. Unless told otherwise, make a lookout check and alter course.

As previously, you should be doing all the right things on setting up a new heading, not forgetting the gross error check. So, if the Examiner asks you to show him the aircraft position on the chart after some 5 to 10 minutes have elapsed you should be able to do so.

If all is well, the Examiner may well break off the diversion and proceed with the next part of the test. In theory, the completion of the diversion should also be logged. There are two more topics to be covered before commencing the Airwork Section of the test: Simulated IMC and Radio Navigation. The sequence of these is entirely up to the Examiner. However, these notes will cover the Simulated IMC first, as follows.

SIMULATED IMC

The aim of this test is to ensure that the candidate can fly a safe 180 degree level turn by sole reference to instruments in the event of an inadvertent entry into cloud. The IMC will be simulated by the use of a hood or goggles. All you have to do is to fly the aircraft totally by instruments and make a turn of 180 degrees. The Examiner will be responsible for lookout and when he instructs you to turn all you have to do is look at the bottom of the DI face and this will indicate your recovery heading. The decision as to whether you turn Left or Right could depend upon the presence of high ground in the vicinity. So do bear this in mind and choose accordingly.

The rate of turn required is Rate 1 and this is a simple task - you fly the AH, cross-referring to the altimeter to maintain constant height, back to the AH (the reference dot on the horizon bar and the correct angle of bank indicated) then down to the TC and back to the AH. Whilst turning, a quick glance at the DI will confirm the progress of the turn. It is important to maintain the required bank angle - not too steep and not too shallow. Maintain the scan until within, say, 5 degrees of the recovery heading, then roll the wings level, maintaining balance with rudder. The turn should take about 60 seconds. Re-capture straight and level flight.

Subject to a satisfactory performance the Examiner will proceed with the Radio Navigation part of the test. This should be good news because once done there only remains the Airwork Section and return to base for circuits so far as the flying is concerned.

RADIO NAVIGATION

This part of the test should not present too much of a problem especially if you thought about it during your flight planning. You could thus pre-brief yourself as regards the likely nav aids, their whereabouts, and the radio frequencies. In addition, the availability of the equipment in the aircraft may also be a limiting factor. Basically, the Examiner will require you to obtain a R.Nav. fix, which might be needed as the result of a diversion, then sometime after that R.Nav. tracking.

The fix could be from two VOR radials or a mix of VOR radials and QDM's or QTE's. Alternatively, you might be able to use TACAN. This will be something you will have to sort out during your Skill Test revision.

The tracking could be towards a VOR or an NDB. However, whatever you do, you must show that you know how to set up the equipment before use i.e. use mnemonic S-I-D (or similar) to Select the frequency, Identify the aid, and check the Display e.g. check ADF is ADF-ing or VOR has no warning flags etc.

One final word, when tracking do compensate for the wind. If you do not, you will not be tracking - you will be homing, something quite different. After the R. Nav. if you are flying the full test the Examiner will move on to the airwork aspects described below.

AIRWORK

GENERAL

A reminder re Flight Management. Throughout the earlier parts of the flight and throughout the remainder of the flight you are the aircraft captain. You will be responsible for the safe operation of the aircraft and this includes all airmanship aspects: good lookout, fuel management, routine checks on the aircraft, liaising with ATC and correct use of the R/T etc. In other words, demonstrating to the Examiner that you are both capable and responsible, and safe to fly passengers.

The test sequence may vary slightly due to the weather conditions or presence of other aircraft, but in general will be as described below. Remember to display good lookout techniques before, during, and after every exercise. If you are in a high wing aircraft raise each wing tip in turn when looking out. If you are in a low wing aircraft you could even lower the relevant wing.

CLIMBING

When you are asked to climb don't forget to complete your pre-climb airmanship checks. Ensure that the Examiner knows that you are doing them. The same applies to 'in the climb'. Sometimes pilots have difficulty in flying in balance in a climb. This should not happen at this stage of training but if you do, don't over-concentrate on the balance indicator, just maintain wing level with ailerons and prevent yaw with rudder. If you do that you have to be in balance.

Best Climb Rate

The chances are that you will be asked to climb at best rate. It will help if you nominate the correct IAS.

Best Angle

Be prepared. Do know the required IAS. Alternatively, this may be done during the Slow Flight stage or at any time you consider it necessary. If you do choose to fly at best angle other than in this Section, do tell the Examiner.

Climbing Turns

Do not forget the lookout! The entry to the turn will show the Examiner if you understand 'turning'. In the climb, with full power applied, you will not require a lot of rudder when in a turn to the Left - on the other hand, sometimes a fair amount of rudder is needed to initiate a turn to the Right. This rule applies to most aircraft fitted with American engines. In addition, do not forget the tendency of the aircraft to over-bank in a climbing turn, especially to the Left - and the need to lower the nose slightly to maintain an accurate safe speed. To capture a given heading on recovery the degree of anticipation will be less than in a level turn. About 5 degrees is right.

Levelling Off

This exercise is a good indication as to whether or not you know and understand how to fly an aeroplane. You need to 'anticipate', but not a lot. Lower the nose to the cruise attitude and push on the control column to capture and maintain the cruise attitude until the required cruise speed has been achieved. You must apply a strong forward pressure on the control column, even increasing the pressure as the speed increases because you will be fighting the full power of the engine and the climbing trim. The harder you push the quicker the speed will be captured - and the required altitude and so the sooner you will be able to reduce the power to cruise setting and trim - forward. At the same time you must maintain wings level, prevent yaw and so maintain balance. Remember that as the power is reduced you will need to compensate with rudder.

Having levelled off at the correct speed and altitude, remove your hands from the control column but continue to 'fly' with your feet and check that you have trimmed properly. You may have to adjust the trim twice or even three times. A common fault is to reduce the power before you have achieved the required IAS. Do avoid doing that because it will take you twice as long to level off and the Examiner will not like that.

STRAIGHT AND LEVEL FLIGHT WITH SPEED CHANGES

Basically, this is a simple exercise. Assuming a clean configuration, at slow speeds the nose will be higher than for normal cruise; at high speeds the nose will be lower than for normal cruise. Your experience should tell you where to place the nose for a given speed. All you have to do is 'guesstimate' the power setting, 'guesstimate' the nose position - hold - and trim. Forget the IAS for the time being; instead, adjust the pitch attitude to capture level flight and re-trim. Then check the IAS and tidy accordingly. Do not try to chase both IAS and the altitude at the same time. That is 'fatal'.

You should not take more than a minute or two to change speed. If you are asked to fly the aircraft in low safe speed flapped configuration as for a bad weather circuit just remember when setting up that the required pitch attitude is virtually the same as for normal cruise. Shouldn't be too difficult.

MEDIUM TURNS (UP TO 30 DEGREES BANK)

Lookout as ever. Nice smooth co-ordinated entries are a 'must' plus a touch of control column back pressure. Remember what you read above about varying amounts of rudder required. In the turn, try to maintain a lookout and fly: Bank - Attitude (cross-referring altimeter/VSI) - and Balance. If you put the wing where it should be, then balance can be simply maintained with rudder. Recovery requires 'anticipation' say 10 - 12 degrees plus the co-ordinated use of all three flying controls - not forgetting the slight relaxation of control column back pressure to prevent an increase in height.

You will be required to demonstrate turns in the landing configuration and in the glide. However, the foregoing advice still holds good. After carrying out such turns a FREDAL check would not come amiss.

STEEP TURNS

These will be flown through 360 degrees both to the Left and Right with bank angles of 45 degrees and will be followed by recognition of, and recovery from, a spiral dive. This last, of course, could be the result of a steep turn that has gone wrong.

45 degree Bank Turns

Prior to entry, you should demonstrate good airmanship by completing a safety check. Clearly this means a good lookout, raising or lowering the wings as applicable, checking for loose articles, and even checking the engine controls if you need full power. A HASELL or FREDAL check wouldn't come amiss.

The entries should be made fairly gently, co-ordinating all three flying controls plus extra power sufficient to maintain both speed and height. It is unlikely that full power will be needed.

In the turns do your best to show that you are maintaining lookout when you are not looking in at your instruments. Remember the mnemonic B-A-B-S. In that order, and you will not go far wrong: Bank - Attitude - Balance - Speed.

On the recovery - as instructed by the Examiner - looking out in the direction of turn and then in the opposite direction, use all three flying controls to roll the wings level, balance with rudder, and ease off the control column back pressure to capture the normal cruise attitude i.e. to prevent an increase in height. At the same time smoothly re-set the power.

If at any time you find the aircraft bank steepening and the nose dropping, do not just increase the control column back pressure. You should know better than that. Instead, reduce the bank positively to about 20 or 30 degrees, then increase control column back pressure until you have the aircraft under control. Then gradually re-establish the steep turn.

Spiral Dive, Entry and Recovery

In all probability, the Examiner will take over control in order to ask you how you would recognize the entry to a spiral dive and what you would do about it. Assuming a satisfactory response he will then place the aircraft in a spiral dive situation and tell you when to recover. Clearly you must not hesitate. You know the drill : close the throttle, positively roll the wings level, then raise the nose to the normal cruise attitude and hold. Remember it takes two control inputs to establish a given attitude. Do not try to loop the aircraft or enter an accidental climb by over-controlling. The IAS will be quite high - let the speed decay to normal cruise IAS, then reset the power. Carry out any necessary checks: lookout/FREDAL e.g. the DI may need re-setting after all the manoeuvring. Clearly any recoveries are to achieve minimum height loss.

FLIGHT AT CRITICALLY SLOW AIRSPEED

Climbing at best angle and straight and level at low speed flapped configuration, which may have been covered by this stage, are considered as part of Slow Flight. However, it is just possible that the Examiner may ask you to fly the aircraft at a nominated speed close to the stall. If this happens, do remember the advice given overleaf.

Advice re Slow Flight is as follows:-

- Before commencement complete the HASELL safety check.
- Due to the low airspeed the controls will be less effective and you will have to work a little harder especially as regards maintaining balance. So-do not forget your feet.
- When turning,, always add power to maintain both height and speed.
- If you need to regain altitude always add power.
- Keep a good lookout due to the higher nose attitude, and do monitor T & P's.

STALLING

This is one of the most important exercises and must be flown competently. Begin by making a HASELL safety check, not forgetting the top-up HELL check between stalls. A word on the entry and recovery procedures: the entries are to be 1G. This means capturing an altimeter reading and maintaining same using control column back pressure until the aircraft stalls, or whatever. The Examiner does not want the aircraft to rear up on its tail as if performing aerobatics! Recoveries are to be Standard Stall Recoveries which means using a smooth application of full power, maintaining balance and getting the aircraft safe with a minimum height loss followed by a climb to regain height lost - retracting flap in the climb where flap has been used.

In all probability, the following stalls will be flown:-

Clean Stall

This will be carried out from level flight, power off, aircraft trimmed. The Examiner will tell you when to recover. Recovery is as described above: minimum height loss, climbing at best rate to regain height lost. The aircraft should be climbed without delay once a safe speed is achieved.

Stall in Final Turn

This will be carried out with the aircraft in the approach configuration i.e. 20 degrees of flap and holding 20 degrees of bank. You must take great care to prevent the bank from increasing beyond the given figure. You are to recover at the first sign of the stall i.e. stall warning light or horn.

Apply full power and move the control column centrally forward just sufficiently to remove all stall symptoms and achieve a safe speed. This should ensure 'no crossed controls'. Balance must, of course be maintained throughout. The wings should then be rolled level in the normal manner and the aircraft then climbed at best rate, the flap being retracted once a positive rate of climb has been achieved. Remember that as each stage of flap is retracted there must be a corresponding higher nose attitude and speed, plus a trim change.

Stall on Final Approach

This will be carried out with the aircraft in the final approach configuration : flying a straight descent, with power and full flap. You will be expected to initiate recovery at the first sign of the stall i.e. stall warning light or horn. It will be a Standard Stall Recovery: full power, no yaw, an appropriate pitch adjustment to achieve a safe speed and to eliminate all stall symptoms followed by an immediate climb at best rate to regain any height lost. Whilst doing so, drag-flap is to be removed as the required safe speed is achieved, followed by retraction of the remaining flap once a positive rate of climb is obtained. All as described for the previous stall.

Here are some final hints to ensure that you make a good showing:-

- When applying full power, balance must be maintained i.e. prevent yaw with rudder.
- If carburettor heat has been applied, re-select cold air just prior to the stall. This will simplify engine handling.
- Ailerons are not to be used at the stall. If a wing tries to drop just prevent yaw with rudder.
- When recovering at the incipient stage the height lost should be minimal.
- Do appreciate the likely pitch attitude for recovery. It will vary with different configurations of power and flap. Excessive or insufficient pitch changes on recovery will cause problems. Just ease the control column forward gently but firmly forward until the stall warning/ buffet ceases, then hold! Once a safe speed is achieved, carry out the remainder of the recovery.
- On completion, tidy up with a FREDAL check. This will 'clear the deck' for the next exercise.

DESCENDING

Having climbed to a safe altitude for stalling the Examiner may well check your ability to make competent descents i.e. with and without power, descending turns, and levelling off. On the other hand, to save time he may check these exercises at anytime during the Skill Test. In any event, you will be checked on steep gliding turns i.e. with bank angles of up to 40 degrees.

Airmanship

Prior to any descent do make a point of completing your airmanship checks. Apart from the obvious lookout check do have a standard pre-descent drill such as : carburettor heat, mixture Rich, altimeter setting etc. plus something not always mentioned : the reason for the descent, will the terrain permit a safe descent, and how far will you descend? In addition, do not forget to warm the engine during power off descents and when humidity is high during any descent.

Powered Descent

If you have to descend at a given rate, do not forget that you will have to add power in a turn to maintain the required the required rate of descent.

Steep Gliding Turn

Remember that in a steep gliding turn the recommended speed is higher than for an ordinary gliding turn. In addition, paradoxically, firm pitch control will be necessary to prevent the speed from becoming excessive. Do watch balance and IAS.

Cruise Descent

Finally, if you are descending for the purpose of joining you should descend at normal cruise speed and not at the slower descent speed used for making an approach.

Levelling Off

Take care to anticipate the recovery by re-selecting cold air if appropriate, and applying power in good time to ensure that you capture the required altitude and the required speed. Re-trim. When recovering from a glide the trim change will be large.

ABNORMAL AND EMERGENCY OPERATIONS

On completion of the Airwork exercises the Examiner will most likely move on to the Abnormal and Emergency Operations Section. In fact, he may have already tested you on one or two earlier in the flight e.g. electrical failure. If he does, he will most likely make a start with simulated engine fire and/or simulated engine failure - so hopefully you will be aware of your surroundings, location, and wind direction.

SIMULATED FORCED LANDING

The Examiner will normally commence this particular test at a reasonable altitude because you may have to show him how you would deal with an engine fire and then carry out a forced landing. On this exercise if away from an airfield you will not fly below 500 ft. AGL.

If you are given a simulated engine fire to begin with, you must without hesitation run through the fire drill - touch checks only - saying out loud what you are doing. The procedures are all in the aircraft Flight Manual. On completion, you should say something like 'Initiating forced landing'.

Assuming that you have set up the glide and trimmed all you have to do is carry out the procedures that you have been taught, again telling the Examiner briefly what you are doing. In a nutshell the procedures are as follows :-

- 1) Establish wind direction.
- 2) Select a field, make a plan, and decide 1,000 ft. area.
- 3) Put the plan into effect i.e. turn the aircraft in the required direction.
- 4) With 3) accomplished, head inside cockpit complete 're-start checks'.
- 5) If engine 'won't start' - say something like 'We are committed'.
 - 6) Say out loud (but not transmit) typical Mayday, also say 'Transponder 7700'.
- 7) Check outside for correct circuit pattern, aiming to land mid-field. Adjust as necessary.
- 8) Head inside. Complete committal checks. Touch checks only. Warm engine.
- 9) Check outside. Turn on to Base as appropriate at 1,000 ft area.
- 10) As for standard glide approach turn 'towards' or 'away'. No flap on Base unless essential.
- 11) Turn Final. Warm engine (especially if low!)
- 12) On Final, lower flap as required to adjust aiming point to one third into field.
- 13) Touch check only, saying, 'Master Off'
- 14) Be prepared for the go-around. Carb. Heat cold. The Examiner will tell you when.

General Advice

Do know how to 'find' a field. There are simple procedures. Ask your instructor.

Do keep to the general procedure outlined above.

Do establish if the wind is strong or light and fly accordingly.

Do be aware at all times of your height AGL - clearly less than that shown by the altimeter.

Do make the exercise realistic - pretend it's real.

Do warm the engine - especially if you are low!.

Do aim to fly a 90 degree approach so as to permit adjustment.

Do make S-turns or increase IAS slightly if you are highish on Final if you have already selected full flap. In an emergency, you can sideslip as well.

Don't choose a field that is obviously too close or too far away. Your field will invariably be close to the radius of the wing tips. Ask your instructor to demonstrate.

Don't over-extend the downwind leg thereby making it impossible to reach the field.

GO-AROUND

This is a fairly straightforward exercise and should not present any difficulty. Details are given in 'Approach and Landing Procedures' later in these notes.

SIMULATED ENGINE FAILURE AFTER TAKE-OFF

This particular aspect could be tested either during the Approach and Landing Section back at base airfield or alternatively immediately following the go-around at the end of the simulated forced landing, where you least expect it - more likely the latter. There is not a lot of time on this exercise so quick decisions are required. The Examiner will initiate the exercise by closing the throttle and saying something like 'Simulated engine failure - You have control'. The drill is as follows:-

- 1) Lower the nose, and adopt the glide. Trim for the correct speed.
- 2) Check throttle closed.
- 3) Look ahead, either side of the nose, say, plus/minus 30 degrees, and select best open space.
- 4) Turn as required. If time, simulate Mayday call.
- 5) If close to the selected area, lower some flap as necessary.
- 6) Committal checks - touch checks only.
- 7) Lower further flap as required.
- 8) Be prepared for go-around as directed by the Examiner.

The Examiner will be looking for your knowledge of the procedure and in particular your determination to fly the aircraft at the correct speed to a safe 'touchdown' irrespective of the chosen area. Once again, you will have to demonstrate a go-around when directed.

SIMULATED PRECAUTIONARY LANDING

This particular exercise is what during your training you will have known as a bad weather circuit. On the test the Examiner might ask you to demonstrate this in the countryside during the Airwork Section. If so, you would place the aircraft in the low safe cruise configuration, fly at an appropriate height to simulate bad weather and find a suitable field. You will have practised this during your training. Alternatively, you could be asked to fly a bad weather circuit back at the base airfield. The Examiner might prefer this since you could also fly a short field approach and landing. Details are given under the heading Approach and Landing Procedures towards the end of these notes.

APPROACH AND LANDING PROCEDURES

AIRFIELD APPROACH

Sometime after the simulated forced landing and go-around depending upon the Examiner's plan it will soon be time to return to the base airfield for the final part of the test: 'Airfield Approach and Landing Procedures'. Clearly you must be ready for this - know your approximate location, have your map handy; if necessary complete a FREDAL check and head in what you consider to be the right direction for base until you are sure of your position when you can take up a more precise heading. If you are asked to 'track', do not forget to check your R.Nav. equipment before use.

When you are within say 10 minutes of the airfield carry out a FREDAL check making sure that the radio is on the correct frequency and has the volume turned up. Make your R/T call passing your position or direction of join and request landing information. Be sure that you know whether .or not parachuting is in progress. In any event, a direct join is the best choice. So in your reply, you could inform everyone on the frequency of your intentions. The Examiner will tell you what type of approach and landing he requires. Expect a touch-and-go because he will probably ask you to fly at least two more circuits.

CIRCUITS

Overall, you will have to fly some or all of the exercises described on the following pages. The sequence may vary depending upon the traffic situation, the weather, and what you have already flown. The following points apply to all types of circuit :-

- Before you fly, you must have clear in your mind the essential differences between the various types of approaches and landings and, of course, why there are such differences. How can you expect to make a competent short field landing if you do not know that the approach speed is lower than normal, the approach is a precision approach, there must be minimum float, and an accurate touchdown.
- You must demonstrate good 'captaincy' in handling the aircraft as regards positioning/spacing re other aircraft in the pattern plus sensible R/T procedures and lookout.
- You have to fly the correct pattern for the particular exercise - especially a good accurate stable approach. Only good approaches will lead to consistently good touchdowns.
- You must understand and cope with the vagaries of the wind speed and direction. Drift due to wind must be offset throughout the pattern, the approach, and touchdown.
- Finally, do not worry unduly if a landing or an approach goes awry. Just make a go-around and say why. Remember, the Examiner is looking for a safe pilot.

Normal Powered Approach and Landing

This should not present any difficulty but first impressions count, so if this is the first task do try to get everything right especially aiming to touchdown in the right place and on the runway centre line.

Cross-wind Approach and Landing

The Standards Document quotes 'if conditions are suitable' . Be prepared, however, for the Examiner to direct you to use an alternate runway, In this event you will have to know-how to change from one pattern to another with safety, without upsetting other traffic. In this event, the Examiner would most likely assist with the R/T and lookout.

Flap-less Approach and Landing

This will most likely be flown at Exeter. Know and understand the differences between this and the standard powered approach. If the wind is light, use a slightly lower than normal power setting when setting-up on Base. In addition, use the recommended higher than normal approach speed. No flap. Turn on to Final as normal, thereafter flying a precision approach to the touchdown point. The nose attitude will be higher than normal - perhaps uncomfortably so. Remember, if you get low you will have to add power with a resultant higher nose attitude and a deterioration in the already restricted forward view. If you get high you will have to reduce power and lower the nose - which although it may improve your lookout - if the wind is light it will give you other problems. So, fly a precision approach. Remember also that without flap and the higher than normal airspeed there will be a longer float, a smaller pitch change on the round-out and a higher than normal touchdown speed. Be prepared to use brakes if you are on a shortish runway.

Go-around

The Examiner will direct you when to initiate the go-around. It will be from low level which means that you will not have to alter heading to fly on the 'dead' side. All you have to do is select/check cold air, apply full power and adopt a pitch attitude appropriate to the flap setting and climb away straight ahead. If full flap has been lowered - and the Examiner will no doubt ensure that it has - the drag flap should be retracted once the power is applied. Achieve a safe speed for the degree of flap set, preventing sink as applicable, and trim. Once the aircraft has a positive rate of climb and a safe speed, the remaining flap should be retracted, adjusting attitude, speed, and trimming at each stage.

At 300 ft check flap in and T & P's in the green in the normal way and resume the circuit pattern.

The R/T call should only be made when the aircraft is safely established in the climb.

Common faults are :-

- (1) Flying along, full flap, full power, making little or no attempt to climb or retract flap.
- (2) Allowing the nose to drop when retracting flap.
- (3) Over-concentrating on the R/T to the detriment to the aircraft handling

Touch and Go

Unless the Examiner directs you to make a full stop landing you can assume that if further circuits are to be flown 'touch and go' landings will be made. These should not present any problems provided adequate runway length is available. Flap should be retracted, trim re-set a/r, and full power applied. On a short runway, such as 18 or 36 at Dunkeswell if you have any doubts about length of runway remaining make a full stop landing, aiming to back track if you have to fly another circuit.

Glide Approach and Landing

The examiner may require you to demonstrate a glide approach and landing. Do not forget that this type of circuit requires you to note the real intended point of touchdown and a second point half-way down the runway as an initial aiming point. It is this second point you should use, until established on Final, that will help you to 'keep height in the bank'. In addition, be sure that you have assessed the wind correctly because it is the wind that determines the next two steps essential for a successful approach. You will need to know where to turn on to base leg and where to close the throttle when on Base leg, to ensure, initially, that you can reach the aiming point half-way down the runway.

You will have been taught the method during your training - if you have not, then be sure to find out before the test. You can demonstrate good airmanship by selecting carb. heat as you turn on to Base, and at the right moment close the throttle and trim for the glide. No flap at this stage. If the air is moist, you would warm the engine on the way down - especially if you are low!

Keep your eye on the initial aiming point because this will indicate if you are high or if you are low or if just right. Adjustment can be made on Base leg by altering track towards (if low) or away (if high) - at this stage aiming to land well down the runway. Once you are on Final, flap can be lowered in stages at the right time to ensure a touchdown at the real intended point of landing. Cold carb. air should be re-selected before touchdown. With full flap and no power the R.O.D. will be high so you will have to anticipate the round-out remembering the larger than normal pitch change.

Bad Weather Circuit

Use race-track pattern, setting up in low safe cruise flapped configuration on the downwind leg. The maintenance of a precise circuit height is important because if too high in real bad weather conditions you could enter cloud and if too low you could erode the obstacle clearance. Towards the end of the downwind leg you should select a ground feature close in on Final where you want to be at, say, 350 ft, with full flap selected ready for the final approach and touchdown. This last is to help you to establish a good habit should you ever require to fly such a circuit in bad weather. The Examiner may require you to make a short field landing.

Short Field Approach and Landing

As for the previous approaches you must know the essentials. The approach is the key : you must not get high and you must not get low. Starting on Base leg, judgement must be exercised to control the height and speed throughout the entire approach, including Base leg, so as to achieve an accurate touchdown. Once full flap is selected on Final, the speed should be reduced, in steps, to the recommended figure for the aircraft type so as to achieve a slower than normal touchdown 'spot on' the selected point of landing, followed by gentle braking as necessary. If you have done it right you will not need the brakes because the touchdown exactly on the selected point at the reduced speed is half the battle.

ACTION AFTER-FLIGHT

Even on the ground you are still under test : taxiing, after-landing checks, shut-down checks, leaving the aircraft, recording flight details and completion of the Tech. Log. Do use the check list and you will be unlikely to omit anything.

Do not carry out cockpit checks whilst taxiing.

Do stop clear of the runway to complete after-landing checks.

Do check your brakes and pause before taxiing slowly into the aircraft parking area.

Do park tidily, into wind, as applicable.

Do check the aircraft when you leave it : brakes On, all switches Off, key out, straps tidy, pitot cover on (C.152), look for signs of bird strikes and/or fluid leaks.

Do action the Record of Flight/Tech. Log sheet(s) with the Examiner, remembering to include the number of Dunkeswell landings.

POST-FLIGHT ACTION

GENERAL

Basically, the post-flight action comprises oral questioning and the de-brief. This will take approximately 30 minutes, including hopefully the news that you have passed.

ORAL QUESTIONING

This part of the test is to check your knowledge on any points that may have arisen during the flight and on the aircraft (and its systems) that you have flown on the test. The CAA Standards Document 19 does not detail the coverage of the aircraft 'technical oral', as it is called, but you can obtain from your instructor a School document which will tell you what you need to know - it explains the coverage and provides several pages of typical questions - but no answers. It is intended that you will read the relevant Flight Manual as a self-study exercise.

DE-BRIEF

Clearly, you will want to know the result of the test. Hopefully, it will be a pass or , at worst, a partial pass which means that you have failed in just one Section. Let us hope that it will not be a fail. Whatever the result, it will be recorded by the Examiner on CAA Form 684 in quadruplicate. This form will also show the result of each Section plus recommendations where re-training is required in the case of a partial pass or a fail.

You will be asked to sign the form to confirm that you understand the result and will be given the white copy to retain and the green copy to accompany your application form for a Private Pilot's Licence. The examiner will also help you to enter the test flight in your logbook and will sign same.

Finally, the procedures involved in applying for the licence will be outlined by the Examiner as applicable. If information is required for re-testing, full details can be found in CAA Standards Document 19.

It's a long haul - but worth it. Good luck on your Skill Test.

