Initial IRT Debrief Digest – September 2023

Introduction

This is an updated collection of the debrief points IR examiners have made over the past years and all of the points from previous collections that are still relevant have been included. I've listed them under the Test Sections to which they have most relevance although many of them read across to a number of Sections. Compliance with all of these points will not guarantee success in the IR but will go a long way to helping produce a 'practical, safe and expeditious passenger flight'. You are welcome to distribute this information to any instructor or potential IR applicant.

Briefing

Standards Document 1. All applicants should have a copy of Standards Document 1 V11. Instructors should bring the existence of Standards Document 1 to all of their students' notice.

RNAV Substitution. Standards Document 1 explains the extent to which RNAV Substitution may be used on an initial IRT. For example:

- If the holding beacon has been substituted by a GNSS waypoint, the examiner will deny access to the MFD map and will require entry and maintenance of the hold to be carried out using a single-needle display (if fitted and available).
- Steering information around the hold generated by selecting 'Hold At Waypoint' when using a G1000NXi or equivalent will be denied.
- Overlay steering information will be denied from entry to the approach base turn.

Flying an overlay approach does not satisfy the requirement that one of the approaches must be an RNP approach.

Pre-test Preparation. We know that the day of the IR will be one of the most stressful in the applicant's life. ATOs can minimise the stress levels by briefing the applicant on what to expect and also by making sure that all of the paperwork that the examiner will need to see is available, fully and accurately completed and signed where necessary.

IRT Profiles. The idea that the IRT has a 'standard profile' is incorrect. All IRTs now require that an RNP approach is flown; one approach will be an RNP approach and the other will normally be a procedural approach. Whether the 3D or the 2D approach is carried out asymmetric will depend on the availability of approaches and the decision of the examiner. The 2D approach may be an RNP, NDB, VOR or localiser only approach at the examiner's discretion; the 3D approach may be an ILS approach or an RNP approach (if the aeroplane is so capable). One approach will be non-RNP; the hold will always be based on a VOR, NDB or RNP fix associated with an approach, and will require single-needle tracking (if the aeroplane is so capable). RNAV Substitution (with some restrictions) may be used for the hold and the non-RNP approach – see above. Note that an LNAV+V approach is not a 3D approach.

NOTAMs. The full route, including the diversion and the return to base, must be checked; the NATS system does not automatically look at the leg to a diversion airfield. Whilst a narrow route brief is appropriate, limiting NOTAMs to a 10nm corridor can result in important items being missed. For partial tests, a point brief may be more appropriate. If there is a NOTAM, such as para dropping or a gliding competition, which will significantly affect routing, then any contact phone number or R/T frequency in the NOTAM should be used to confirm whether the activity is actually taking place at the time of the flight.

RAIM. If it's planned to fly an RNP approach then RAIM should be checked as part of the pre-flight preparation. Even if SBAS is available, it's prudent to check RAIM in case of any subsequent failure. Applicants should understand the difference between FD and FDE.

Flight Plans. There is a requirement for additional information about GNSS/PBN equipment to be included in Item 18. CAP 694, The UK Flight Planning Guide explains this. The transponder built into the G1000 merits more than 'S' in Item 10.

Safety Altitude. Not all applicants have any understanding of IFR outside CAS. Specifically, the application of safety altitude is misunderstood. Some applicants are using the MEF or MSA figures on their charts for calculation of SA rather than complying with the requirements of their Operations Manual (of which they also have little knowledge). The use of MEF or MSA might be sensible when executing an unplanned diversion but is not acceptable for a pre-planned IFR flight.

Electronic Forms. Electronically produced M&B schedules are acceptable, but applicants should be prepared to be asked questions on them, such as "We've got another passenger now; what effect will that have?" Applicants must make sure that the ballast shown on the electronic form is actually in the aircraft (or vice versa). An electronic PLOG can be used if in accordance with the Ops Manual. PLOGs must be completed during the planning process on the day of the test and

must not be modified to contain extraneous items such as skeleton clearances, checklist reminders and approach airfield details.

Instrument Minima. Applicants are correctly adding the allowance recommended by the UK AIP to the 3D approach DA but not all actually know why they are doing it. Applicants should also remember that they may need to apply a factor to DA, MDA and ACA plus any step-down fixes if forecast temperature at the destination is 0°C or below. Minima should be calculated iaw FCL Part-CAT or Part-NCO as appropriate and the associated AMCs and GMs, and as required by the UK AIP. If a CDFA is to be flown on the 2D approach, then a descent allowance for the go around must be stated. Some applicants are unaware of the minimum RVR for single-pilot operations.

MDA Changes. There have been NOTAMs over the years which temporarily raise the MDA or DA at some airfields but no mention is made of the RVR. The AMCs to Part-CAT and Part-NCO tabulate the relationship between MDH/DH and RVR and this may require an increased RVR to be used. Changes to and unserviceabilities of approach lighting will have a similar effect.

Tech Log. If we are taking an aircraft on the first flight of the day, we will expect the person who has carried out the 'A' check to have signed for it. We will ask questions on the Tech Log as we have found patchy understanding of it despite applicants already holding a class rating. We expect applicants to have checked the Tech Log thoroughly and be familiar with the layout of the Certificate of Release to Service. Tests have been lost or delayed because applicants have failed to notice out-of-phase items that are imminent or even overdue. We also expect applicants to have read through and thought of the implications of the deferred defects, especially in relation to the actual weather conditions for the IR.

Performance. Most ATOs training for the IR use 'public transport factors', although individuals undertaking a competency-based IR may be guided instead by the Skyway Code. There is still confusion regarding weather conditions for arrival planning and public transport factors; in particular, Part-CAT requirements regarding temperature, wind and slope for the destination when despatching an aeroplane are not well understood. Some applicants often have the benefit of knowing where they are going for some considerable time but they are not always making best use of their planning time. We only require the performance and mass & balance calculations that are needed for the planned flight, ie mass and balance at take-off with a projected line showing M&B for the rest of the flight (or to zero-fuel), including the use of anti-icing fluid if applicable; take-off performance related to base; landing performance related to our planned destination **or** landing performance for the intended diversion if it is obvious that this would be the most limiting case (for example destination: Cardiff, diversion: Gloucestershire). Whilst most applicants calculate TODR and LDR correctly, many have not checked these against the actual runway available and have no idea whether they should use TORA, TODA, ASDA or LDA which makes the calculations meaningless. Even those who try to do this may have used the distance written alongside the runway on the airfield diagram rather than the figure from the 'Declared Distances' table in the AIP resulting in errors of 400 metres or more in the case of Gloucester. All we want to check is a real-world understanding of these calculations and their implications. Electronically produced performance charts are acceptable but, again, applicants must have an understanding of the data they are presenting.

Weather. Applicants are expected to give a weather briefing. It is apparent that a number of them cannot correctly decode a TAF – not many know exactly what TEMPO or CAVOK mean. They are also often confused with regard to cloud-base height vs altitude and with the conditions causing an approach ban. The decoding of the area chart F215 has also been problematic with misunderstandings regarding cloud types, bases and thickness. When conditions are marginal, few have considered the need for a take-off alternate. Presenting METARs that are over 4 hours old as the actual departure weather shows a lack of common sense.

Departure

Aircraft Preparation. The pre-flight inspection includes 'windscreen clean and undamaged' but we frequently find the windscreen dirty and smeared. The problems that this will generate when landing into a low sun do not seem to be understood. Loose articles should be kept to an absolute minimum and heavy items should invariably be secured.

Part-NCO Compliance. Part-NCO requires the carriage of both the aircraft POH and an ELT or PLB as well as the ICAO visual interception signals. Not all schools are as assiduous in their compliance with this as they should be.

Passenger Care. The IR examiner is acting as a passenger and so, as well as giving any briefings required by current legislation, applicants should ensure that their passenger is correctly strapped in whenever the checklist requires such an action.

Cowl Flaps. The use of cowl flaps to regulate CHT is not understood by many applicants who mechanically set the position of the flaps without reference to CHT. On the Seneca V, the CHTs are only visible on the 'Engine' page; few applicants check this page in the air.

Navaid Checks. At many airfields one can properly check Nav 1 and Nav 2 using the ILS, as well as checking the ADF and DME on the ground. On a few airfields such as Southampton there is also a VOR which must be checked. We would expect applicants to have been taught how to fully check all of these aids, but this is not often the case. The FNPT II provides the ideal opportunity to teach and practise these checks. In addition, applicants are generally unaware of the propagation characteristics of an NDB which would allow them use some other beacon for their ADF check if their home NDB were to be unserviceable. On aircraft where there is a single DME slaved to either Nav 1 or Nav 2 (as in the G1000), the DME only needs to be checked on one box on one frequency – the frequency that will be used for departure.

SSR. Mode S transponders are required for flight in CAS. Applicants must be familiar how to input the aircraft identifier (callsign) at start-up. UK AIP instructions regarding the use of code 2000 on shut-down should be followed.

GNSS. The use of GNSS is expected during the IRT. A minimum of RNAV 5 is required in en-route CAS in the UK and some routes require RNP 1. Navigation equipment must have an approval in the aircraft's POH and, if appropriate, have a current database.

Volume Controls. We still get many applicants who seem to be unable to set up the volume and squelch controls for the intercom, comms boxes and nav boxes. They seem especially unaware of which knobs control intercom volume and radio volume. Time should be taken to ensure a reasonable balance between all of the boxes. Corrections should be made in the air where it becomes obvious that a nav box or Com 2 is too loud.

Heater Checks. Most aircraft heaters do not produce hot air immediately. Switching the heater/defrost on, feeling for an air flow, pronouncing it 'serviceable' and immediately switching it off does not check it's working. The heater should be left 'on' while other checks are done and then re-checked a bit later.

Master Caution. G1000 equipped aircraft have a master caution indication which will illuminate or flash (depending on installation) to indicate a problem. If this illuminates (for example when the pitot heater is tested in the after-start checks), it must be cancelled/acknowledged immediately. If this is not done then further cautions will not be made obvious to the pilot.

Taxiing. Speed and accuracy on the ramp have been a concern. Given the tight clearances and the chance of people appearing from behind parked aircraft, walking pace should be maintained on the ramp and yellow lines should be followed precisely. In addition, instrument checks should **never** be carried out while still on the ramp; ideally, they should be carried out using the natural bends in the taxiway and sharp zig-zags should be avoided. Some applicants have tried to combine instrument checks with full-rudder checks, resulting in wild swings across the taxiway and poor lookout. Many applicants are using power against brake when taxiing. Some applicants are also unsure of how to use differential power to assist with turns.

Checks. Applicants are still paying lip service to checks - saying but not doing. Examples are: checking altimeters on the ramp without knowing the ramp elevation; checking prop levers and continuing even though there was no discernible decrease in RPM on one of the engines; not commenting on engines outside idling limits; not moving controls to full deflection during full and free checks or not checking the rudder at all; over-speeding services by not checking limitations; not checking that 3 greens have been obtained; not checking that the flaps have moved to the selected position; not confirming that max rpm has been set when on an asymmetric approach; claiming that altimeters have been cross-checked when both were on different pressure settings, not checking the magnetos properly at the end of the flight. When a checked item has been out of limits (ie altimeter, magnetos) and cannot be fixed, it is up to the applicant to declare that the aircraft is unserviceable and abort the flight. With regard to excessive mag drops, applicants should know how to attempt to clear the problem without examiner intervention. Whilst it is not an integral part of the IRT, given that applicants will have passed the examinations for an ATPL and for the MEP class rating, examiners will expect applicants to have a reasonable understanding of the workings of the aeroplane they are using. Standards Document 1 states that checks should be verbalised as much as possible.

G1000/950. When we brief applicants, we will make it clear that they can display and reference the G1000 moving map throughout almost all of the flight. In addition, the proposed route should be entered as a flight plan. Steering information can be used during the whole flight, with the exception of the final stages of the non-RNP approach; we will normally remove the moving map for the hold and procedural approach. Examiners may remove GNSS information for a period during the off-airways en-route section in order to confirm that the applicant is aware of position and can navigate by VOR/DME/ADF alone. Auto-ident of the VOR/ILS is acceptable (indeed encouraged). There is no requirement to select 'ANT' in the air when identifying an NDB if the ADF needle only shows when a signal is being received (as in the Seneca V G1000 installation).

GNS430/530 & GTN650/750. The permitted use of the GNS430 series and GTN650 series is similar to that of the G1000.

Icing. De-icing and anti-icing equipment should be used with regard to actual temperatures and with the assumption that there may be cloud at all operating levels. Whilst regular checks of OAT should still be made (and verbalised), the examiner should only be asked to check for ice when there is a realistic possibility that ice could have formed. Some applicants have been unaware that the windscreen defrost on some aeroplanes also requires the heater to be 'on'. Many applicants still do not understand difference between de-icing and anti-icing. When to use the windscreen de-ice spray or heated panel is also unclear; guidance on the use of the heated panel is in the POH supplements. It seems that many applicants have never been expected to operate these systems in reality.

Departure Brief. Although we do not require a departure brief, we will listen to one that is given. Some applicants have stated that, between lift-off speed and 'blue line' speed, they will force land if an engine fails. Whilst the possibility of forced landing must be considered, the initial action should be to climb away on one engine once there is no more runway available; only if a climb at V_{YSE} cannot be achieved should a forced landing be undertaken. If taking off in marginal conditions the applicant must have thought about the real-world consequences of an engine failure and not trot out "… I'll carry out a visual circuit to land" in all cases. A departure diversion airfield may need to have been considered.

Crosswind Take-off. Sometimes we see a lack of crosswind technique when there is a significant crosswind. However, the most common error is for full crosswind technique to be used when there is 5 knots or less of crosswind. This often results in the downwind wing lifting. Applicants should understand that sufficient aileron is required to maintain wings level on the take-off roll – no more, no less. Some of this problem comes from applicants deciding on their take-off technique with reference to the ATIS wind rather than looking at the windsock or listening to the wind passed to them with their take-off clearance.

Throttle Handling. Some applicants release the throttles and place both hands on the yoke for the take-off. In the event of an engine fail at around 60 kts they would be hard pressed to stay on the runway. The throttles should be held until the aircraft is safely airborne – say, when it's time to retract the gear.

Unstick Speed. Aircraft POHs give a specific take off speed. If the aircraft unsticks before this speed then control may be lost in the event of an engine failure. However, delaying unstick to greater than this speed means that scheduled take off performance will not be achieved. Many applicants are delaying any aft stick movement until unstick speed resulting in unstick around 10 kts fast and often, because they are holding the yoke forward, potentially dangerous porpoising during the take-off run. The yoke should start to be moved gently aft around 5 kts early, allowing a final 'rotate' at the correct speed to unstick the aeroplane. A number of applicants have allowed the nose to rise after take-off and so have taken a considerable time to reach V_{YSE} and then climb speed. In a twin, the establishment of these speeds after take-off should be a priority. Gear retraction should normally be delayed until the possibility of landing back on the runway has gone.

En-route

Ice. OAT checks are often rather sparse in the cruise, especially on the off-airways leg. In addition, when icing is encountered and the checks are carried out, the propeller heat switch is checked but rarely the ammeter – the prop anti-ice is only working if it's switched on **and** there's sufficient current showing on the gauge. Many applicants forget that the heater/defrost is an essential element of the anti-icing precautions as the freezing level is approached.

Log Keeping. Both on the IR and CPL Skill Test a log must be kept that allows the reconstruction of the flight. The skill of log keeping is best taught from the earliest opportunity so that it becomes second nature. As well as ETAs and ATAs, the log should include service, frequency, heading, level and SSR changes as a minimum, ideally with the time of change. The log should **not** be prepared pre-flight to include just about all of the possible frequencies required during the flight - these are on the appropriate charts and plates. It is quite possible to fly with a pen/pencil clutched in the right hand for instant use (unless, like me, you're left-handed).

Fuel Log. Applicants should be aware of the fuel required to complete the planned flight at the start of each leg and should note the fuel remaining on their PLOG. The gauges in many older light twins are awful but they still give a ball-park fuel and planning is still relevant to possible diversions etc.

Cruise Climb. Cruise climbing is often carried out untidily. Even for 1000 ft climbs some applicants climb at V_Y and full power, giving themselves all sorts of problems stabilising the climb and levelling out. In addition, correct use of propeller and mixture controls is often missing.

Briefs. In-cockpit position reports and copious pre-descent briefs are not normally required on the IR. The IR is a simulated single-pilot passenger-carrying flight with no special rules – applicants need do only what is required of them by ATC and current legislation.

Mixture Control. Some applicants are failing to lean the mixture in the cruise, especially the off-airways cruise. Those who do, often lean incorrectly and pay no attention to the 2 EGT/TIT gauges. We are seeing more reference to the

EGT/TITs now, but some applicants do not seem to realise that the response to a mixture change is not instantaneous on the EGT/TIT gauges, leading to extended periods of 'playing around' with the mixture controls at the expense of flying the aircraft or quickly leaning to beyond peak EGT/TIT and almost shutting the engines down.

Autopilot 1. A serviceable autopilot may be used at the examiner's discretion during the cruise and descent portions of the flight. Altitude, vertical speed, flight level change and heading modes may be used, but not navigation mode.

Autopilot 2. Applicants frequently select altitude mode when the aircraft is not exactly at the altitude or level they require. It is not acceptable to fly a leg using the autopilot maintaining, say, 4060ft instead of 4000ft. Applicants should know how to use the autopilot to climb or descend to the correct level.

Altimetry 1. A significant number of applicants have been unfamiliar with their Ops Manual rules regarding altimetry. Errors have included: setting QFE on both altimeters; setting SPS on both altimeters; leaving RPS or home base QNH on No 2 altimeter while making an approach elsewhere. Our strong recommendation would be to set the No 2 altimeter to local QNH for departure and then to arrival airport QNH as soon as the weather has been obtained. There is little merit in resetting the No 2 altimeter to RPS or to SPS in the short airways cruises flown on an IRT. In the descent we see little or no cross-checking of the altimeters in order to confirm serviceability and correct settings. Frequently the No 2 altimeter is not reset until the Initial Approach Checks and then only lip-service is paid to the requirement to cross-check the altimeters.

Altimetry 2. EFIS equipped aircraft normally have the facility to select 'Std Baro' instead of just dialling 1013 hPa. Not only is this more accurate but, when the Transition Alert feature is setup correctly on the G1000, it helps applicants to avoid making a level bust when climbing above transition altitude or, perhaps more importantly, when descending below the transition level. If the Transition Alert feature is set correctly, the baro readout will start to flash when climbing above the transition altitude if 'Std Baro' has not been selected on the altimeter. It is now generally the case that airline crews who have a 'Std Baro' selection on their altimeter will regard 1013 hPa only as a QNH setting or RPS. Flashing indications in the cockpit are normally an indicator of error or failure and so should be avoided. If 1013 hPa has been set and it starts to flash, adjusting the Baro scale by 1 hPa up and down will cancel the warning (once you've analysed the situation and checked for errors).

Radar Service. In the UK a Traffic Service is the preferred service outside controlled airspace. Whilst a Deconfliction Service would give a potentially safer flight, it is unlikely that the destination would be reached within the endurance of the aeroplane due to all of the avoidance turns that would be required. With a Traffic Service, traffic information is given and it is up to the pilot to interpret the information, judge the hazard and react accordingly. On an IRT, if the traffic is unlikely to be a threat then a simple reply of "traffic not sighted" by the applicant is sufficient. If the traffic is a potential threat then applicants should state this and ask the examiner if they are visual, pointing out or stating where the examiner needs to look. If the examiner is confident that they will be able to spot the traffic then they will say so, otherwise the applicant must take the appropriate action, either by getting more detailed information from the radar unit or by initiating some form of vertical or horizontal avoidance.

Getting Ahead. All of us teach students to use slack periods to get ahead of the game. However, some applicants are taking this to extremes. Trying to pick up an ATIS over 40 nm from the destination can lead to turning down the other box to hear the weather and then forgetting to turn it up again thus losing contact with their controlling agency. In addition, by the time we reach the destination, the weather code will often now have changed. Few applicants seem to know what to do about this – they have 2 choices: either to listen to the ATIS again or just say ask ATC what changes there are from the last to the current ATIS. Some applicants select their next navaid much too early, leading to a loss of current, relevant nav information.

ADF. A number of applicants are unaware of the need to use the ANT position when identifying an NDB in the air (not always necessary with a G1000). Not only does it provide a clear ident signal, but it also, when deselected, it proves that the needle has positively locked on to a beacon. The only occasion when the use of ANT is not sensible is during the confirmatory ID of the ADF during the outbound and inbound legs of an approach or departure procedure.

VOR ID Feature. A surprising number of applicants have no idea why you can select 'ID' on or off on the GNS430/G1000 or why you can pull the volume knob out on a Bendix King Nav box.

Morse Idents. Applicants generally listen to the Morse idents for nav beacons but many don't actually check the Morse they hear and will announce, for example, that NAV 1 is tuned to Daventry when it has in fact coded HON. Another applicant was stumped when Compton coded TST. At the very least, applicants should recognise the Morse code for TST.

G1000 – DME Ident. Some applicants are unaware that they need to listen to the DME ident to confirm that they've tuned the correct beacon even when the VOR ident is displayed at the top of the screen.

ATC Liaison. Applicants, to an extent, make their own luck on an IRT. Those who explain clearly to ATC what they want, and then fly in accordance with their clearance or in accordance with the plan they have told ATC about, generally have an easier time than those who keep ATC in the dark about what they need or mislead then by missing out important points on their preferred routing. This is especially true when departing from a busy airport like Birmingham or East Midlands. If applicants say that they want to fly direct to X and are cleared to do so, then ATC will not take kindly to them making a 60° intercept on the radial they want to use, which was based on a line directly from the airfield rather than from their present position. If an applicant is taken off their pre-planned route by ATC and precise appreciation of position has become difficult, then asking for radar vectors to a suitable point or to achieve an intercept is far preferable to blundering around near CAS or danger areas. These problems should be easily overcome by use of the GNS430/G1000 'Direct To' button.

RT in general could be improved. Common errors are:

Missing their callsign from replies to ATC.
Repeating messages verbatim rather than replying with only the mandatory read-back items or using "wilco".
Not 'completing the contract' for air traffic services.
Americanisms like "copy that" and "copy traffic" rather than "roger".

Airways Clearance I. Instructions from an ATSU may be "remain outside of CAS …"; however, applicants sometimes read this back as "remain clear of CAS …". The word 'clear' should be reserved for occasions when a positive clearance to do something is being given or read back. The difference between an 'instruction' and a 'clearance' is not well understood.

Airways Clearance II. Applicants must be aware of the difference between (and read back accordingly) "Clear to join CAS ……at FL80" and "Clear to join CAS ……in the climb to FL80".

Airways Join. This point applies to any airway join where clearance has not yet been obtained. Applicants approaching CAS without a clearance sometimes enter an orbit to avoid controlled airspace; however, before they started the orbit they had made no attempt to gain a clearance from the controlling agency. If it is obvious that controlled airspace is fast approaching then the sensible thing to do is ask for a clearance to enter.

'Airways' Leg 1. There is no statutory requirement to enter Class 'A' airspace as part of an IRT, but entry into some form of CAS is required to test the applicant's ability to comprehend and fly in accordance with an ATC clearance. We will always set IR routes that require Class 'A' entry but, if we are subsequently unable to get an airways clearance, we will continue with the IR as long as one of our destinations is in CAS or requires a transit of CAS. Applicants should, therefore, be prepared to go to such destinations as Bournemouth, Bristol, Cardiff, East Midlands and Birmingham below their planned routing or on a slightly modified route to remain outside Class 'A' airspace.

'Airways' Leg 2. All UK airways are designated as PBN routes and so the default method of navigation must use RNAV approved equipment (whether this is GNSS or a KNS-80 RNAV). However, a suitable en-route VOR/DME should normally be tuned and identified as a back-up during the climb into CAS. Approaching the destination airfield, the arrival/approach navigation aids can be selected, especially after radar vectoring starts or if the clearance is directly to an approach aid.

Descent Planning. Some applicants are not planning descents well. There is a lack of understanding of the expression 'track miles' and so, when ATC give track miles and ask if this is adequate, some interesting replies result. We would expect applicants to know that a light twin typically descends at 3 nm per 1000 ft (the same as a B747!). Although it would be nice to limit descents to 1000 ft/min in the interests of passenger comfort, this is not a potential fail item. Conversely, descending at less than 500 ft/min could result in a fail. Descents between 700 ft/min and 1200 ft/min are unlikely to cause comment from the examiner. Some applicants have the mistaken notion that slowing down in the descent without a significant power reduction will give a steeper descent angle, and so slow to 120 kts early on. This has 2 effects: they find it hard to maintain at least 500 ft/min and they annoy the controllers severely, both because of the low ROD and because, at places like Bristol, they block the approach to subsequent high-speed traffic. Some applicants have been increasing rpm in the descent contrary to the checklist in the belief that it will increase the descent rate; reducing MAP is a much more effective way of controlling the descent. Levelling from a descent at cruise speed and initially leaving the power alone will result in a rapid reduction to the required initial approach speed.

Initial Approach Checks. Some applicants are putting the mixtures to 'rich' early in the descent and so overcooling the turbo-chargers. Mixtures should not be moved to rich until required in the checklist. Some applicants are starting the initial approach checks by increasing rpm before reaching the beacon on a procedural approach – this is incorrect.

Off-airways Transit Altitudes. The Daventry/Birmingham/East Midlands CTA has a transition altitude of 6000ft and we are finding applicants who are unaware of the lower transition altitude found elsewhere. If a transit is flown initially above the TA then an IFR semi-circular level must be used. However, if the transit enters an area where the transition altitude is

above the cruising level then an adjustment must be made such that the aeroplane is now flying at an IFR semi-circular **altitude**. This is especially important when approaching Compton on the return from Bournemouth to Oxford. Similarly, when departing from, say, Cardiff, where the TA is 6000ft, applicants may be cleared initially to 5000ft altitude; on leaving CAS it is the applicant's responsibility to adjust to a flight level to maintain compliance with IFR. If an altitude is flown it must be at or below the TA for the area in which we are flying. Few applicants know what IFR actually are.

Off-airways Navigation 1. Applicants need to be able to set course from their first destination without first setting up the GNSS. Too many times we see applicants who have been cleared 'own navigation' remaining on runway heading while they frantically try to set the GNSS up or, just as bad, start turning and then try to sort the GNSS out in the turn. Once cleared, applicants should turn directly onto a DR heading (their PLOG should show one) and, only when steady, should they attempt to set up the GNSS.

Off-airways Navigation 2. Some direct routings to the second destination can put the aeroplane close to or even inside a parachute area, danger area or HIRTA. Whilst the route will need to be modified slightly to avoid the hazard, it is not acceptable to generate huge dog-legs which give excessive clearance. For example, although initially tracking the DTY 090° radial from Cambridge will help avoid EGD 206 when going to CIT, it is not acceptable to maintain the radial until intercepting the 034° radial from CIT. There should be no problem with intercepting, say, the CIT 070° radial.

Radar Handover. If a service is being obtained from a military radar unit during the transit home, that unit will normally hand you over to the next appropriate unit in good time without you needing to make a request. However, civilian radar units may not be so proactive and will wait for you to request a handover; they may not, in any case, be able to arrange a handover and so you will need to free-call the next agency. You need to consider at what range you want to start receiving a service from your destination airfield and take steps to effect this as necessary. You should be in communication with them at least 10 minutes flying time away.

Initial Radio Calls. There is sometimes a requirement for a free-call to the next agency. Many applicants seem completely unaware of the implications of the expression 'free-call' and have little idea of the content of an initial call to an agency as laid out in CAP413.

GNSS Navigation. When using the GNSS for navigation, applicants should slave the HSI deviation bar to it and not try to just follow the magenta line. Applicants should therefore know what full-scale CDI deflection represents and how this is affected by Terminal and En-route GNSS modes.

DOC. A number of applicants have shown a disregard for the DOC of the beacons, both NDB and VOR, they are attempting to use. This has varied from blasting the examiner with white noise while they try to code a beacon that is well out of range, to stating that they are tracking a beacon in a similar position. There is nothing wrong with tuning and identifying a beacon when it is a little out of range in anticipation of using it when it is in range; this includes identifying an ILS when outside 35°. However, for the purposes of the IR, applicants should make it clear to the examiner that they are navigating by DR until the beacon is in DOC. On the subject of coding and white noise, it is pointless trying to code a VOR or ILS when the 'NAV' flag is present on the HSI or OBI.

RNP Approaches - General

Pre-approach Checks. Once the approach (or a STAR or SID) has been loaded, a check of tracks, altitudes and distances needs to be made between the plate being used and the data displayed on the G1000/430 flight plan.

Checks During the Approach. During the approach the correct sequencing of GNSS modes needs to be seen – TERM to LNAV (or LPV etc) to SUSP. Not all applicants have understood how the GNSS behaves during the missed approach.

CDI Modes. Applicants should know the horizontal accuracy (ie full scale deflection) of all the relevant modes: ENR, TERM, APPR, LNAV, LPV (not available in the UK), L/VNAV.

3-D Approach

Tight Approaches. Controllers are human too and sometimes get it wrong. We expect applicants to be aware that they are getting close to the glidepath before localiser intercept and to do something about it. There are many different solutions and different scenarios but a few things to bear in mind are:

> Glidepaths do not have to be intercepted from below if you have distance information available to allow you to confirm that you've found the correct glidepath.
>
> You can ask the controller for further descent to allow you to get below the glidepath, although you then need to descend at a greater angle than the glidepath to make this worthwhile.
>
> You can ask the controller to increase the cut you've been given by, say, 10°.

If excess speed or low ROD is a problem then flap can be selected early, as can the gear (within the limiting speeds!)

If all else fails, an early decision to ask for repositioning will not necessarily penalise the applicant.

Wind Change with Altitude. Applicants often set the expected drift for an ILS approach based on the surface wind and are then surprised when they experience different conditions at the start of the ILS. They must remember that, at 2000 ft the wind may have veered some 30° or so and increased. Controllers at RAF airfields will give pilots the 2000 ft wind on request.

G1000 Auto-ident. Sometimes the G1000 auto-ident facility doesn't work because the station ident volume is too low. It is usually still possible to ident aurally using the 'NAV1' button. The consequence of the lack of auto-ident may be that, when using an ILS, the CDI pointer doesn't slave to the QDM. Some applicants are unaware that you can move it manually!

ILS Failure. Although it is not a 'test item', applicants should be aware of the procedures required if, say, the ILS fails during the approach. We would expect an applicant faced with an equipment failure to initiate the correct drills (ie go around or convert to localiser approach) and then discuss options with the examiner. To minimise the risk of equipment failure, best practice would be to tune both NAV 1 and NAV 2 to the ILS unless a VOR were needed during the initial missed approach procedure.

Glidepath Monitoring. Applicants must monitor the relationship between glidepath and distance and also need to consider the implications of an ILS where the DME is u/s. They must be prepared to ask radar for range information during the approach and relate this to glidepath progress. Note, at some non-UK airfields the DME will not necessarily read zero at touchdown.

Decision Altitude. Some applicants are adding 50ft or more to DA (in addition to the PEC) in the mistaken belief that they must not go below DA during the go around. We expect applicants to initiate go around at the published DA plus the pressure error correction for the aeroplane and any applicable temperature error correction. Whilst there is a notional 50ft tolerance on DA stated in Standards Document 1, this is there for use at the examiner's discretion and should not be applied as a matter of course. Go arounds from above DA can be a fail item, especially if the examiner perceives that the go around has been initiated in order to avoid exceeding the glidepath or azimuth tracking limits.

Go Around. Applicants are still allowing the nose to drop during the symmetric go around thereby levelling off or even descending. This error is so potentially dangerous that it will generate an immediate fail for the approach just flown.

Turning Go Arounds. At Birmingham the controllers are keen that we should clear their centreline as soon as possible and so give go around instructions such as "turn left onto 240° and climb to 3000 ft"; this can also happen at Bristol and Bournemouth. We need to fit our engine failure into this and so, rather than initiating it before the turn, we will often wait until the turn is complete as long as we have been cleared to a sufficient altitude. Some applicants have been 'helpful' and started this turn at about 300 ft aal, which can give the examiner an unexpected view of the terminal buildings! Whilst we need a prompt turn, turns should never be started below 500 ft aal; some airfields require 1000ft or the upwind end of the runway before turning – applicants need to be familiar with the AIP entries for the airfields they are using. Whether the engine failure occurs before or after the turn, any turn should only be started when it is safe and sensible to do so. Especially at East Midlands and Cardiff, the applicant should announce the intention to depart asymmetric when giving training requirements before the approach.

Go Arounds into the Visual Circuit. Because of the problems of removing screens/hood at DA and the proximity of ACA, an asymmetric ILS is likely to lead to an asymmetric go around on instruments. The technique for such a go around may be significantly different from that for a visual asymmetric go around given the different speeds and flap settings. If a visual circuit is then to be flown the examiner will remove the hood once the aircraft is climbing safely and re-orientate the applicant as necessary before they turn downwind.

2-D Approach

Beacon Ident. Best practice on an NDB approach is to re-identify the NDB on both the outbound and inbound legs of the approach to make up for the lack of in-aircraft failure indications (no need to select ANT). We have no objection to applicants wish to leave the coding on continuously during the approach but they should be aware of the possibility of distraction and missed RT calls; such monitoring should be done through the headphones and not the speaker.

IFR Arrivals. Applicants are still coming to grief by not being at a cleared procedural level before reaching 5 mins flying time from the holding area while receiving a Procedural Service (iaw PANS Doc 4444-RAC/501). However, others are overreacting and, even though they are receiving a radar service of some kind from an agency who has agreed to get them a level, still start holding at 15 nms to go. When receiving a LARS from an ATSU a sensible question to ask at the start of

the transit is “can you get me a level for the GST hold and procedure?” If the answer is not a definite “yes” then applicants must ensure they are in 2-way contact with the destination airfield 10 mins flying time away (UK AIP Gen 3.3.3). If the answer is “yes” then they can stick with the radar until told to change frequency (as long as they are getting a Traffic or Deconfliction Service, not a Basic Service). Really smart cookies could get the cleared level on the other box so they could stay with radar a bit longer.

Timed Procedures. Some approaches require timing from passing over the beacon, either as the primary way to define the missed approach point or as a secondary means, should the DME fail. Some applicants are forgetting to start the clock at the beacon. Those that do generally have not thought about the time by which they need to be at MDA. Timing iaw the plate gives the MAPt which is usually the threshold. MDA is normally about 500 ft agl and so needs to be achieved about 1½ nm before the threshold in order to achieve a safe landing. This means achieving MDA around 45 secs before the MAPt timing - one minute to be on the safe side.

Off-airfield Beacons. Approaches where the beacon is crossed when inbound, give applicants tracking problems. We do not expect applicants to hold ±5° all the way into the beacon. Some applicants make large corrections very close to the beacon and then hold the correction after beacon passage, leading almost invariably to a failed approach as the approach course is never seen again. Others give up tracking to the beacon too early and accept tracking errors of as much as 20° with a mile to go; this will also lead to a failed approach.

Rate 1 Turns. Some applicants are unaware of the relationship between angle of bank and turn rate, thus producing unstable turns while they chase the turn coordinator instead of setting an appropriate angle of bank on the AI.

Descent in the Hold. There seems to be quite a lot of misinformation regarding when one can descend in the hold. If, while holding, you are cleared for the procedure with no caveats then you may, if you wish, immediately commence a descent to the minimum holding level/altitude shown on the plate. Once beacon outbound you may then continue descent iaw the procedure.

Descending Outbound. Some applicants believe that you must be within 5° of the outbound track before commencing a descent. This is incorrect; by being within 30° of the outbound course when inbound to be beacon you will be in a safe position to start your descent when crossing the beacon (PANS Doc 8168-Ops Fig I-4-3-3). Obviously, you should then aim to be within 5° as you progress outbound.

Not-below Altitudes. We have been asked about ‘not below’ altitudes on Jeppesen plates. The definitive document for approaches is the AIP. In this document some altitudes are barred and some (like holding altitudes and platform altitudes on many procedures) are not. In accordance with PANS-OPS, any barred altitude below the FAF will be treated as a ‘not-below’ altitude and the test tolerance on that altitude will be minus zero feet. Unless marked otherwise, altitudes on Jeppesen plates are ‘not below’ altitudes. The word ‘Mandatory’ next to an altitude on a Jeppesen plate indicates that the altitude is an ‘at altitude’ – not above and not below.

CDFA. FCL Part-CAT now requires all public transport operators to fly a continuous descent final approach (CDFA) when there is sufficient information to do so. ATOs are strongly recommended to teach the CDFA rather than the stepped or ‘dive and drive’ approach. If the ATO Ops Manual requires a CDFA to be flown, then it will also state the allowance to be added to MDA to give the go around altitude (Derived Decision Altitude or DDA). Applicants will be expected to follow the descent profile on the plate and then go around on reaching their DDA. At this point the aircraft should be on a stable approach in a position from which a safe landing could be made. The altitude tolerance during this approach is not laid down but, obviously, any ‘not below’ altitudes must be observed and the approach should not involve large changes in rate of descent; approaching DDA the PAPIs should not be showing 4-reds or 4-whites. The examiner may or may not remove the last screen/hood approaching DDA. If the screen/hood is not removed then a go around should be initiated so that the aeroplane does not descend below MDA. If the screen/hood is removed then the approach should be continued visually if the runway environment is in view.

Stepped Approaches. For those approaches where a CDFA is not possible (ie no DME) or not appropriate (ie circling where there is no runway associated with the procedure), there will be no upper height limit on ‘not below’ altitudes as most of these are hit during the descent phase and so it’s up to you how high you are going over them, bearing in mind that you want to achieve a reasonably steady final descent. Indeed, on some approaches the ‘not below’ altitudes are significantly below the notional 3° glidepath and descending to these altitudes may contravene noise abatement requirements (see below). Below the IAF altitude tolerances will be minus 100 ft with the caveat that, if the aircraft is levelled at a step altitude then the normal ±100 ft tolerance will apply. On an ILS, once you are following the electronic glidepath you are not bound by ‘not below’ altitudes - these are for localizer-only approaches. Similarly, if you are being vectored for an approach, the height tolerance of ±100 ft will apply until you are below the FAF altitude.

Descent Rates. As well as en-route descents, the AIP requires descents in the hold, above TL, to be flown at a minimum of 500 ft/min. This allows ATC to descend stacked aircraft simultaneously, knowing that the descents will maintain

vertical separation. There is no such rule for descents below TL and in the procedure itself. However, ATC will generally assume that, if you call "leaving 3500 ft", you will be descending at 500 ft/min minimum for the first 1000 ft. After that the descent rate is up to you. This allows ATC to immediately descend another aircraft to your vacated altitude.

Descending Inbound. We have seen some confusion regarding the inbound descent on an NDB approach. PANS-OPS (Doc 8168-OPS/911 3.3.3.4) requires that the aircraft is within 5° of the inbound course before any descent can be initiated inbound. This requirement starts from the completion of the inbound turn, not just from passing the Final Approach Fix.

Landing Gear. We have seen a fair number of gear-up approaches on asymmetric 2-D approaches. Most of these have resulted in high, fast, unsuccessful approaches even if the gear position has been noted and corrected at a late stage. The approach often becomes unsuccessful from a safety point of view where applicants put the aircraft at ACA around 20 kts fast and too close to the airfield, claiming that they could land from the approach. Proving an applicant's safety awareness is what the IR is all about and so an early decision to go around from a bad approach is more likely to save the day than continuing.

Circling Approaches. Applicants have been unsure of what to do with the gear and flaps during a circling approach. On some procedures some applicants have automatically selected flap on going visual, even when asymmetric, requiring them then to use high power on the live engine to remain in level flight or, in some aeroplanes such as the Da42, resulting in a loss of airspeed and/or altitude even with full power selected. Whether the gear should be down or not during an asymmetric circling approach is a moot point. Our advice is that it should be in order to keep the standard settings for an approach and to cater for changes of plan at the last moment requiring a landing from the approach with little time to configure the aircraft. This decision should be reviewed if maintaining altitude becomes a problem. Strictly speaking, one can descend below circling minimum once continuous visual contact with the threshold is assured (simplifying the PANS-OPS requirements slightly). However, we will treat the circling minimum as a 'not below' altitude (+100 ft minus 0 ft) until the visual base leg is commenced in order to simulate minimum visibility.

Visual Transition. Some applicants are risking a failed approach because of a poor visual transition. On a stepped approach it is not uncommon, when the hood/screens are removed as the aircraft reaches MDA with the PAPIs showing 2 reds/2 whites, for the applicant to maintain level flight until 4 whites are shown. The subsequent steep approach often results in 4 whites and 100 kts plus at ACA which will result in either a failed Section 5 or a failed Section 6. Transitioning on a CDFA should be easier as the aeroplane should already be on a stabilised approach. At ACA applicants must be in a position to land the aircraft if required, which means carrying out a stable approach from MDA to ACA at the correct speed and angle. Decisions to land at ACA from a bad approach are unsafe and will be penalised; decisions to go around will probably result in another chance to get it right.

Asymmetric

EFATO. Applicants should be aware of the CRM/TEM implications of how they switch off the failed engine's magnetos and why they close the throttle of the failed engine as the first action in the feathering drills. In the case of Seneca II and III applicants frequently set less than full power on the live engine and try to struggle up the climb with as little as 35"; depending on the precise set-up of an engine. After the initial actions, correct power on the live should be one of the earliest checks - the health of the live engine is invariably checked but rarely the power output. Missed checks (gear/flap, fire, PAN call) have been frequent. The test tolerance on V_{YSE} is ±5 kts on blue line speed; however, the blue line speed marked on the ASI is for max auw and so the real V_{YSE} at training weights could be around 3kts less. So, whilst flight up to V_{YSE} plus 5 kts is acceptable, transient speeds as low as V_{YSE} minus 10 kts will not have a significant effect on climb performance and will probably be tolerated as long as directional control of the aeroplane is not affected. Sustained speed much below V_{YSE} minus 10 kts shows a lack of control, especially if directional control is compromised, and is likely to lead to a failed section. If the EFATO has been given on runway heading and departure instructions have been given requiring a turn after the go around, applicants should maintain runway heading until it is safe to turn. Having just gone around due weather, asking for a visual circuit to land or even a further instrument approach in the simulated PAN call is unrealistic. On the subject of RT, during the initial drills, including feathering and gear/flap retract, drills and aircraft handling have absolute priority; any calls from ATC should be met with a polite "standby" until a safe climb rate has been achieved.

Asymmetric Go-around. Two different errors are prevalent here. Firstly, some applicants will not raise the nose until they have retracted the gear and flap, by which time the aircraft may be doing 120 kts or so and be quite low. Secondly, some applicants delay raising the flap until they have a positive climb and frequently lose 10 00kts in the process. Both of these errors are very common when the go around is carried out from an instrument approach. In the case of a Seneca, the aeroplane will already be at 100 kts with only 10° flap and so holding a low attitude during gear and flap retraction will almost invariably lead to gear overstress. Raising the nose should be coordinated with aircraft speed in order to achieve and maintain V_{YSE} as soon as possible.

Visual Circuit 1. After the asymmetric go-around, the subsequent circuit to land/touch-and-go is **not** a circling manoeuvre (unless briefed otherwise by the examiner or required by ATC/weather), it is a visual circuit at either normal circuit altitude or at an altitude agreed with the local ATC. Applicants should therefore find out what the circuit altitude and direction are during their initial planning. In addition, they should check for any noise abatement procedures (such as at Gloucester on Rwy 27). If poor asymmetric performance means that published circuit altitude cannot be reached then applicants should inform ATC (and hence the other aircraft in the circuit) of their achieved downwind altitude. A circling manoeuvre will be required if an approach is made to a runway other than the landing runway (ie EGTC ILS 21 landing on 03) or if, when the hood is removed at minimums, the runway is not ahead in a landable position and circling is required to sort out the problem. Subsequent to such a circling approach, a normal or low-level visual circuit will still be required.

Circuit Airmanship. Although the visual circuit leading to the asymmetric landing is not a test item as such, applicants are expected to exercise judgement and airmanship during this phase. Failures of Section 6, Item d (ATC compliance, airmanship) have been precipitated by applicants failing totally to allow for crosswinds and for hazarding other circuit traffic by poor lookout and airmanship decisions. Safety is paramount and an early decision to go around for circuit spacing will be appreciated by the examiner.

Downwind Call. Many applicants are unaware of the correct position for making the 'downwind' call. Calling in the correct place is vital in order for ATC and other aircraft to make decisions related to your position.

Final Call. CAP 413 states that the "final" call should be made when on final approach. Calls in other positions lead to confusion for both other circuit traffic and for ATC and have led to unnecessary go arounds. There may be circumstances where an early final call would be advantageous - on a tight asymmetric circuit for example. Perhaps a call of "turning final", while not iaw CAP413, would solve this problem and keep everyone orientated. At military airfields the "final" call is made on commencing the base turn.

Use of Services. When flying an asymmetric circuit, some applicants flying the Da42 blindly select approach flap half-way round the base turn and land flap at asymmetric committal altitude. On a windy day and from a wide downwind this can often lead to 100% being applied to the live engine. In any aeroplane when asymmetric, services should only be used when there is a need to 'go down' or 'slow down'; trying to counter excess drag with power is poor airmanship and can lead to an unsafe reduction in speed.

Landing. Landing technique is often poor, with the aircraft being forced onto the ground one third of the way down the runway at too high a speed on all 3 wheels. This can lead to bouncing from wheel to wheel with the possibility of a prop strike or nosewheel collapse. These problems are caused by trying to keep "2 reds, 2 whites" until the flare, not achieving V_{ref} until entering the flare, lack of pitch trimming in the final stages of the approach and just allowing the control yoke forward as soon as the aircraft touches down. If the aircraft won't stay on the ground with the stick held back then it has been landed too fast. The aim should be to achieve threshold speed at the threshold and then touch down abeam the PAPIs at the correct speed. Brakes should only be used after landing as and when necessary; after a landing at the right speed in the correct place there will be hardly any need to use the brakes on most runways.

Airwork

Stalling - Symptoms. Applicants are briefed by the examiner to recover at the first sign of the approaching stall. The only reliable, consistent indicators of the approaching stall are the stall warner or light buffet. Modern EFIS often have a 'low speed awareness' indication whereby the speed tape changes colour to red. Unless this system is driven by angle of attack (which it is not in the G1000) then it does **not** provide a consistent, reliable indication of the approaching stall and recoveries should **not** be initiated when it shows.

Stalling – Recovery. Some applicants are maintaining attitude and relying on power to recover; this is incorrect as it is effective only if the stall was entered from a level or nose down attitude. The standard and **only** way to consistently recover from a stall or from an approaching stall is to reduce the angle of attack and so there must always be some forward movement of the stick to achieve this and to stop the buffet or warner; the amount of forward movement will vary considerably depending on the depth of the stall and on the initial attitude of the aeroplane. Once the symptoms of the approaching stall have been removed, the new attitude can initially be maintained and then the aircraft can almost immediately be transitioned into a climb. There is no need to hold the nose down to get a 'safe speed' before climbing and cleaning up. Some applicants allow the speed to increase to in excess of 20 kts above the stalling speed and this results in either height loss or a failure to climb. Given that the final approach stall is simulating a situation that could happen at, say, 300 ft agl, a more positive climb entry should be encouraged; an initial target of being *established* in the climb by V_X (77 kts in a Da42 TDI, 83 kts in a Seneca V) to give best terrain clearance would not be unreasonable with an acceleration to V_Y occurring in the climb as the services are retracted. The fact that a Seneca will climb at around 1000 ft/min at 60 kts with gear down and 40° flap comes as a surprise to many. Some applicants have used aileron incorrectly when recovering from a stall in the base turn. Use of aileron must be delayed until there are no symptoms of the stall in order to minimise the risk of autorotation; thus, the wings should be rolled level immediately after the buffet or stall warning has ceased.

Climbing and Descending. No one is having trouble with climbing and descending on limited panel, although heading control is sometimes weak. Some applicants are going for a V_Y climb which is not necessary when only changing levels by 500 or 1000 ft and which makes levelling off an unnecessarily challenging exercise.

Limited Panel Unusual Attitudes - General. Some applicants may have undergone UPRT before their IRT. UPRT recovery techniques are **not** appropriate to recovering a twin-piston aeroplane from an unusual attitude because they do not emphasise minimum height loss techniques. Examiners will emphasise that all UA recoveries should be carried out with minimum height loss (or gain if climbing). We have seen applicants in nose-high UAs pitching before rolling; this is dangerous and can lead to a descending outside turn. The only time pitch should come before roll is if symptoms of the stall, buffet or stall warning, are present, and then only sufficient to unstall the wing. Applicants aren't relating control forces required to maintain level flight after recovery to the aircraft's speed - ie if you're still doing 140 kts on recovery then you'll need to push to hold level until the speed decays to 120 kts. Trimming during a UA that was entered from trimmed S & L flight is probably unhelpful. Occasionally applicants attempt the level the aeroplane at a round thousand or five hundred on the altimeter; this is contrary to the briefing to level at the 'first instance of straight and level flight' and could be a fail point if it has involved changing a descending UA into a climb or vice versa.

Limited Panel Unusual Attitudes – Turn Coordinator. There is much ignorance on the capabilities and limitations of the turn co-ordinator. Applicants often roll to wings level on the TC and then pitch. At this stage the aircraft will probably still have around 30° of bank. They should roll to about Rate 1 past wings level indications to really get the wings level.

Limited Panel Unusual Attitudes – Standby Attitude Indicator. In aircraft fitted with a standby attitude indicator, UA recoveries are more straightforward. However, whilst rolling and pitching can be mixed, aircraft rolling 'g' limits must be observed. During nose-high UAs it is acceptable to leave bank on (or even apply bank) to assist in bringing the nose to the horizon without having to use excessive negative 'g'.

Steve Oddy
September 2023

IR Revalidation/Renewal Addendum

Profile

IR only. The revalidation/renewal flight profile is slightly different from the initial IR profile. Details are on the SRG1157 and in Standards Document 14. The profile could be:

- IF departure
- Route sector and/or arrival in controlled airspace
- Hold and 2D approach
- EFATO
- Airwork – limited panel (standby instruments) turns and unusual attitude recoveries
- Asymmetric 3D approach to go around
- Asymmetric circuit to land

One approach (but not both approaches) must be an RNP approach. The 2D and 3D approaches can be swapped around. Radar vectors can be used at the examiner's discretion. RNAV Substitution can be used to the full extent indicated in CAP1926 and the Summer 2023 TrainingCom. Consult CAP 2138 regarding the implications of no RNP approach being available.

IR plus ME class rating. The profile will be as above with the following additions:

- Airwork to include visual elements: usually 2 stall recoveries and steep turns
- Possible simulated system failures
- Visual circuits to include normal and flapless landing, and go around
- Rejected take-off

Use of Automatics and GNSS for IR revalidation/renewal

Autopilot. The autopilot may be used throughout the flight in any mode, subject to the following limitations:

- 3D approach must be hand-flown, although use of a flight director is permitted
- POH limitations on autopilot use when asymmetric (including sim asymmetric) must be observed

GNSS. Full GNSS information can be used throughout the flight. However, on an approach based on terrestrial aids, lateral guidance during the final approach segment must be given by the terrestrial aid. Additionally, if RNAV Substitution is used, then the approach must be loaded as an overlay rather than just adding an appropriate beacon as a GNSS waypoint.

Flying an overlay approach does not satisfy the requirement that one of the approaches must be an RNP approach.

Cross-crediting

Holders of a multi-pilot (MP) IR may renew or revalidate their single-pilot (SP) IR using cross-crediting as described in Appendix 8 of Part-FCL. For SP ME IRs, this will require Section 6 (Asymmetric) to be flown with a CRE/IRR or an IRE. The usual profile will be:

- *EFATO
- *Asymmetric instrument approach (2-D or 3-D)
- *Asymmetric go around
- Asymmetric landing

* By sole reference to instruments