***T-44A Briefing Guides***



EVENT: **I4101**

**SYLLABUS NOTES:**

Emphasis for I4101 is GPS approaches.

c. Minimum of 4 approaches per event and include at least 2 procedure turn approaches. Normal two-engine approaches should be emphasized in this block, but may introduce minor malfunctions.

d. Each event shall include a minimum of one approach with the FD and one without.

e. Holding should be accomplished and graded on at least two events, one of which should be GPS holding.

f. All events shall include a missed approach and should include at least two circling missed approaches in the block.

g. One approach per event with IP as PF and SMA as PM, emphasizing CRM callouts and radio communications.

h. SMAs shall bring one DD 175 flight plan per SMA and one DD 175-1 per aircraft for their planned profile to every brief. SMAs shall draft a flight plan that will execute the required maneuvers for the events.

**SPECIAL SYLLABUS REQUIREMENTS:** I4101 – Coupled Approach Demo.

**DISCUSS ITEMS:** Local Operations, NOTAMS, IAF Procedures, CRM callouts, GPS approach types, GPS configuration point, RAIM, approach modes, Overlay Approaches, RNP, IFR Landing Transition, Observer IFR Duties/Visual Clearing, Spatial Disorientation, Unicom Voice Reports, Autopilot/Flight Director.

**Local Operations –**

\* NORDO:

**Immed. after T/O:**

1. Climb/Maintain 1600 on last assigned heading.

2. If no comms in 3 mins, climb/maintain 2600.

3. Upon reaching 2600, turn direct approach fix, execute approach.

**Cleared to 2600/above:**

1. Climb to last assigned heading/alt.

2. Proceed dir IAF, exec approach.

**In GCA Pattern:**

No transmissions for 1 min, proc dir IAF, exec approach.

**On Final:**

Attempt to contact tower, proceed VFR, land. If unable, intercept instrument approach course, or climb/maintain 1,600', proc dir IAF, execute approach.

\* Local Ops: Coded flight plans/Departures in IFG.

**NOTAMS –** Time critical aeronautical information that is temporary or not known sufficiently in advance to permit publication in aeronautical charts or in other operational publications. Examples are: airport or primary runway closures, changes in NAVAID status, RADAR service availability, and other information essential to planned en route, terminal, or lading ops.

6 types – MAFCNG “Mafsing”

Military Flight Safety NOTAMS – Information about military aerodromes.

Attention Notices – General notices to military pilots. Broken into groups. All, Europe, N. America, Caribbean and S. America, Pacific.

FDC NOTAMS – They are REGULATORY! Contain amendments to published approaches, charts, etc. Broken down into categories – General FDC NOTAMS, ARTCC FDC NOTAMS, and Airports, Facilities, and Procedural NOTAMS.

Civilian “D” NOTAMS – Civilian equivalent of Military Flight Safety NOTAMS.

Notices to Airman Publication – Book of four parts on the DINS website.

GPS NOTAMS – Four types: SV Outage NOTAM, RAIM Availability NOTAM, Jeppesen NavData Alert/NOTAM, GPS jamming NOTAM.

**IAF Procedures –**

GPS Specific - Do not descend on the approach unless: 1. the FMS is in Terminal Mode (+- 1NM) and Approach Mode is Armed and 2. The CDI is off the wall (this indicates the aircraft is within +- 1 NM of centerline).

IAF in General: If you are within 90° of the procedure course, use normal lead points. If not within 90° overfly the point.

GPS Points: Know the difference between Fly-By points and Fly-Over points. Fly-by points are a “star” and not circled. You can lead these points with normal lead points. Fly-Over are circled GPS points and require you to fly directly over the point before turning.

**CRM Callouts/Techniques –** Callouts are listed in the FTI in a graphic that is useful. Read it. Also, be sure to check for “Approach Mode Armed” and “Approach Mode Active”. 30 NMs out and 2 NM from FAF, respectively.

**GPS Approach Types –** GPS Stand Alone Approaches: 3 types – T-Shaped GPS Approach, Holding in Lieu Of (HILO), Terminal Arrival Area.

**GPS Configuration Point –** Configuration point is ~3 NM from FAF/FAWP. Note that the DME will be counting down because it is to the next waypoint. Once your FAF is your next waypoint, configure when DME reads 3 miles.

**RAIM –** Receiver Autonomous Integrity Monitoring. Needs a minimum of 5 satellites in view, or 4 and a barometric altimeter (BA) to detect and integrity anomaly. For capable receivers, RAIM needs 6, or 5 and a BA to isolate the corrupt satellite signal and remove it from navigation solution.

**Approach Modes –** Enroute Mode: Full-scale deflection of 5NM either side of centerline.

Terminal Mode: Within 30 NM of origin or destination CDI gradually scales down to +-1 NM of centerline. Verbal Response required: (green APPR light in T-44A illuminates) “Approach Mode Armed”.

Approach Mode: At approximately 2NM from the FAF waypoint, CDI gradually scales down to +- .3 NM of centerline. “CDI +-.3” displayed briefly on the scratch pad of the FMS and Progress Page 3/3 to view CDI displacement. Verbal response required “Approach Mode Active”.

Missed Approach Mode: Hitting the Go-Around button or cycling the FMS past the MAP will decrease sensitivity from .3 to 1 NM.

**Overlay Approach -**  Identified by the name of the procedure and “or GPS”. Only approaches contained in the current onboard navigation database are authorized. The database may contain information about non-overlay approach procedures that is intended to be used to enhance position orientation, generally by providing a map, while flying these approaches using conventional NAVAIDs. This information should not be confused with a GPS overlay approach.

*Caution:*

*When flying GPS Overlay approaches, the DME readings are based on the*

*underlying NAVAID, not GPS DME. This can cause confusion when flying*

*the procedure as a GPS procedure. Care must be taken to make sure the proper*

*DME fix is being used.*

**RNP –** Required Navigation Performance. A performance standard for aircraft manufacturers, designers, pilots, controllers and international authorities. Basically the sensitivity of GPS equipment for phases of flight. See Figure in the FTI for specifics.

**IFR Landing Transition –**

Search for the runway when you think you will be able to visually acquire it. Transition to VASI or other visual glideslope indicators (PAPI, etc) when able.

**Observer IFR Duties/Visual Clearing –**

1. Look out for traffic
2. Confirm gear down and locked prior to the 90, or 1 mile final if the field is in sight
3. Monitor radios
4. Check flaps up on touch and go
5. Count the number of landings

On most events, a second student will be along. The student not flying is designated the observer and will help to clear for possible conflicting traffic, ensure gear is down for landings, and backup the pilots in front on the radios. The observer shall be posted on the same side of the aircraft as the student flying to be better positioned for clearing responsibilities. The student flying the aircraft, although simulating instrument flight, should still visually clear all turns during RI flights unless a visual restriction device is being worn; this is in the best interest of safety. Sleeping in the back is prohibited on training flights. The observer is not a backup for the student in the seat who may be forgetting something; however, the observer should feel free to notify the instructor or the crew of anything that may affect safety of flight.

*NOTE:* A vision restricting device may be worn on all BI or RI flights when an aft observer is available.

**Spatial Disorientation –**

Spatial disorientation is the inability of a person to accurately orient themselves with respect to the surface of the Earth. SDO is categorized as Type I/Unrecognized (the most dangerous), Type II/Recognized (the least dangerous), and Type III/Incapacitating (rare, but dangerous).

The visual system is the primary mode or orientation. However, when the visual cues are removed (IMC flight), the vestibular system becomes the primary source of orientation information. Unfortunately, in-flight, the vestibular system and somatosensory system are not only powerful but also untrustworthy.

Recognizing the physical and physiological factors affecting susceptibility to SDO helps you control them. The physical factors (those you cannot control) include weather, type of mission, the time of day and duration of the mission. The physiological factors (those you can control) include self-imposed stresses, mental and physical fatigue, emotional well-being and flight preparation.

You can help prevent SDO by knowing your limitations, remedying correctable factors, using your capabilities properly, recognizing high risk situations and staying alert. If you become disoriented, transition to instruments and believe the instruments. Basically, get on the instruments and make them read right. SDO is overcome by knowledge and awareness, effective CRM, and minimized exposure to self-imposed stresses.

**Unicom Voice Reports –**

FTI Info –

Use “Navy Kingair XXX” for Unicom Calls. Make at a minimum, a 10 mile call, downwind, base, final, and departing.

AIM 4-1-9 – When outbound: Announce before taxiing and before taxiing onto the runway for takeoff.

When inbound: 10 miles out, entering downwind, base, final, and leaving the runway.

For practice instrument approach: The AIM only specifies two cases:

1. No tower, FSS or Unicom - Departing final approach fix(name) or on final approach segment inbound.
2. No tower in operation, FSS open - Approach completed/terminated.

**Autopilot/Flight Director –**

The flight director may be used independently or coupled to the autopilot. If the flight director alone is utilized, the aircraft is flown manually using command bars as guidance. The autopilot similarly may be used with or without the flight director. When the autopilot is used alone, control the aircraft with the manual pitch wheel and roll knob. When coupled, the autopilot controls the aircraft using commands generated by the flight director. Touch control steering may be used anytime the autopilot is engaged. Power levers must be adjusted manually to obtain desired performance. The pilot must continually monitor autopilot performance and be alert to deviations. Never rely exclusively on the autopilot. Disengage the autopilot by depressing the AP/YD disconnect switch on the yoke to the first detent or the go around button on the power levers and take over manually if required. Minimum altitude for autopilot use is 200 feet above terrain. Use the NATOPS manual procedures for operation of the flight director and autopilot. Note the following:

* Confirm all appropriate annunciator lights are illuminated during use of AP/FD.
* During autopilot operation, pilot must be seated at the controls with seatbelt fastened.
* The autopilot will roll to bank angles up to 30°.
* When the autopilot is coupled, select HDG (with the bug on the nose) prior to changing NAVAID frequencies. The will prevent sudden turns as the aircraft attempts to intercept a new navigation course.

NOTE: *The autopilot may be utilized as desired after initial introduction, at the instructor’s discretion. Do not expect to be allowed to use it unless conducting extended airway navigation (cross-country) or it is called for in the syllabus.*

Coupled approach. Follow procedures in the NATOPS manual. If autopilot coupled operations are to be conducted, advise the ATC approach controller as soon as practical, but not later than the FAF. This will allow time for the appropriate ILS critical area to be cleared or an advisory issued. The advisory used by controllers will be: “localizer/glideslope signal not protected.” In this case, be alert for unstable or fluctuating ILS indications that may prevent an autopilot coupled approach. Continually monitor autopilot performance and remember, you must configure the aircraft manually and control the airspeed with the throttles.

NOTE: *The boundary of the ILS critical area is identified by the “double-runged ladder” marking painted on the taxiway; also a sign with an inscription “ILS” in white on red background will be installed adjacent to the taxiway. This should be used as the runway holding position when the ceiling is less than 800’ and/or visibility is lees than 2 mile or when directed by ATC.*

(NATOPS 15-20)

The following conditions will cause the autopilot to disengage automatically:

Any interruption or failure of power, vertical gyro failure, activation of vertical gyro fast erect, a flight control system power or circuit failure, activation of electric elevator trim, or autopilot trim failure.

Primary circuit breakers (CBs) affect the autopilot: #1 FD CB, AP Power CB, & the AFCS CB.

The autopilot can be intentionally disengaged by the following:

1. actuation of AP/YD disconnect switch (either control wheel)
2. autopilot engage lever moved to ‘DIS’ position
3. actuation of go-around button (left power lever; yaw damp remains on)
4. pulling flight director/ autopilot circuit breaker
5. turning off BATT/GENS (gang bar) or avionics master switch.

If an engine fails, disengage autopilot, retrim aircraft, and reengage autopilot if desired. If autopilot is used in conjunction with an instrument approach, maintain 120 KIAS for single-engine approach speed until landing is assured.