

# Instrument Process Check

By Robert Dean

---

## Instrument & Navigation Check:

### 1. Instruments:

- Airspeed @zero
- Attitude Indicator Within 5 minutes
- Altitude +/- 75' from altimeter setting
- VSI zero or note the difference
- DG turning
- Turn Coordinator turning – ball moves in opposite direction
- Compass full of fluid and turning

### 2. Navigation:

- Set NAV 1: 108.7 (or local frequency)
- Set NAV 2: 108.7 (or local frequency)

### 3. Identify NAVs by pressing audio panel buttons for NAV 1, NAV 2 and Markers.

### 4. Completion of NAV check.

- Set up for ILS approach (or the local approach at your airport)

**In case you need to return in IFR conditions – Doors Open – Fuel Cap not On Properly**

---

### Initial Departure:

- Constant speed climb to 1,000 ft @ 75knots. Use Attitude Indicator 8° - 10° pitch. Relate AI to ASI.
- Constant rate of climb to 2,000 ft @ 500 ft per minute – stabilize use Attitude Indicator 5 pitch. Relate AI to VSI.
- Climb Checklist
- Cruise checklist

*(Instructor and Examiner look for 90% of the time to maintain the above)*

---

### VOR:

- Virginia key – 117.1 or 113.9
  - Fly a heading of 240°
  - What radial are you on **FROM** the VOR?
  - Intercept the 270-Radial and fly away **FROM** the VOR
  - Double the difference between 240° and 270° = 60°; 60° + 270° = 330°
  - Fly a 330° heading until the needle centers again, then turn to a heading of 270°
  - Intercepts
    - Going **FROM** <sub>TO</sub> **FROM** use Double Method
    - **TO** <sub>TO</sub> **TO** use the Double Method
  - When going **TO** the VOR and passing over it to intercept another radial use a 30° intercept
-

### Flying directly to a VOR:

- What radial inbound are you on **TO** the VOR? Radial is on the bottom of OBS
- Intercept another Radial **TO** the station  $\pm 30^\circ$  to the left of the present radial

Rotate OBS to desired Radial on bottom of OBS-CDI deflects in direction of Radial. Double the difference between the two Radials and fly the new heading from the TOP of the OBS in the same direction of the needle.

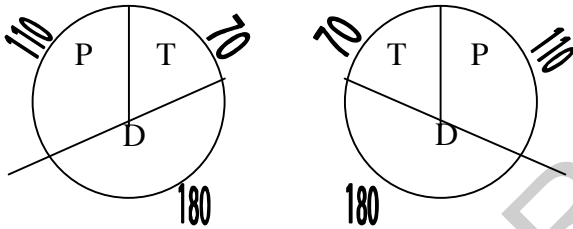
---

### Rules for VOR:

1. FROM  = Radial = Your position in relation to the VOR  
TO
  2. Heading = OBS (*When going TO or FROM the Station*)
- 

**Holds:** MUST BE TAUGHT USING A HEADING INDICATOR – Draw the hold on the picture

1. Direct
2. Parallel
3. Teardrop



- Go to fix and hold
  - How to enter the hold?
- 

### Full VOR Approach KAPF:

- On Simulator
- 

### Compass Turns:

- East & West  
When on an East or West heading, the magnetic compass will turn if you accelerate or decelerate (push nose down to accelerate & pull up to decelerate)  
**“ANDS” – Accelerate North, Decelerate South**
- When turning from North or South to East or West:
  1. Roll out **exactly** on East or West
  2. Rock your wings opposite of turn then back again and level to stop
  3. Count to 10 while scanning Turn Coordinator and Altimeter before looking at magnetic compass

### “UNOS” – Undershoot North, Overshoot South

- **Undershoot North:**  
Latitude +  $\frac{1}{2}$  bank (when turning from  $180^\circ$  to  $360^\circ$ ) =  $25^\circ$  (in S FL) +  $\frac{1}{2}$  ( $15^\circ$  = standard rate turn) =  $32^\circ$

- **Overshoot South:**  
Latitude - ½ bank (when turning from 360° to 180°) = 25° (in S FL) – ½ (15° standard rate turn) = 18°

**Timed Turns:**

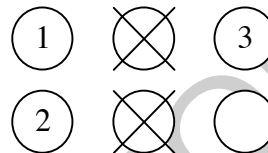
- Standard rate turn for 10 seconds = 30°  
(Use *VOR* or *ADF* to count degrees)

**Unusual Attitudes:**

**Speed is too fast, simultaneously:**

1. Reduce power
2. Level wings
3. Level attitude and call altitude

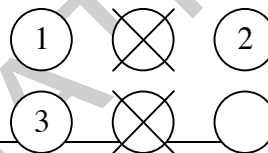
**Scan = ASI – TC – ALT**



**Speed too slow, simultaneously:**

1. Increase power
2. Lower nose
3. Level wings and call altitude

**Scan = ASI – ALT – TC**



**Format for all approaches:**

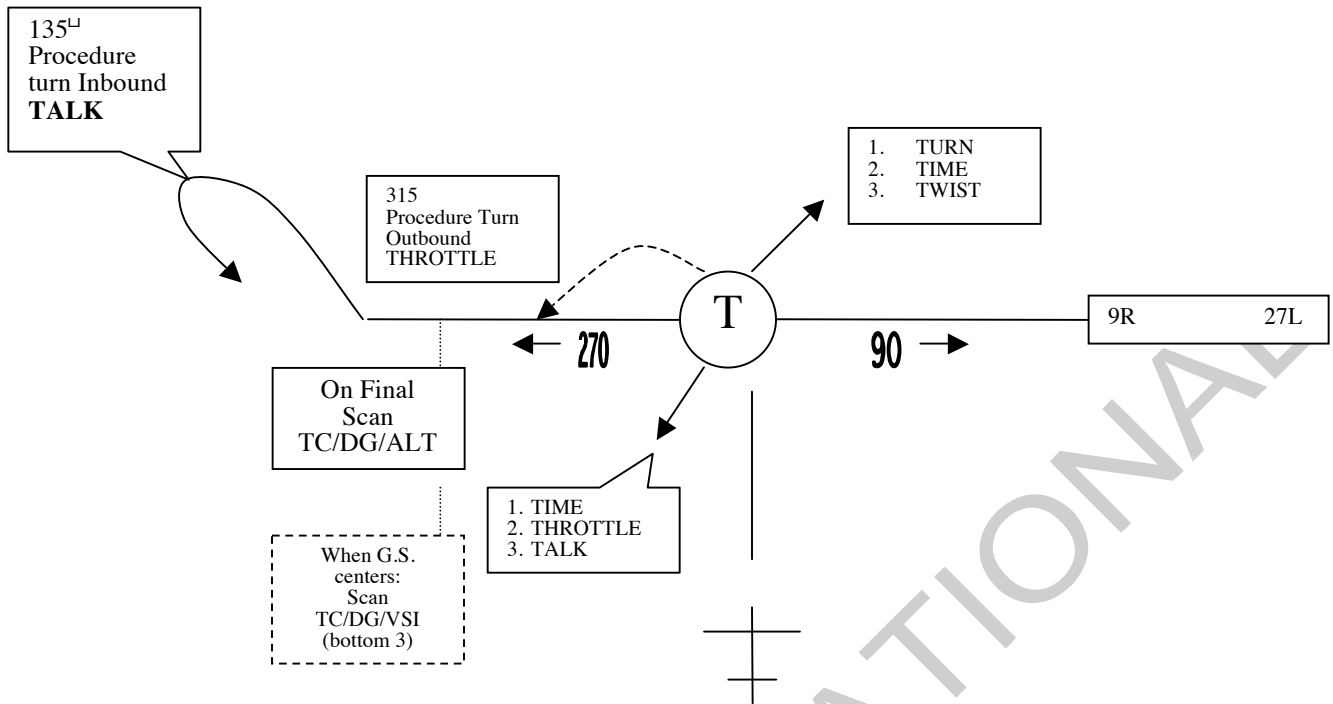
Distance from airport	Task
40 miles	<b>ATIS</b>
30 miles	<b>Set &amp; Identify NAV aids</b>
20 miles	<b>Review Approach plate</b>
10 miles	<b>Slow aircraft</b>

1. Listen to **ATIS** weather and approach info
2. Set NAV 1 – 108.7    NAV 2 – 113.9
3. On Audio Panel, test the following:
  - Marker beacon lights, then set to high
  - Listen for Morse code on NAV 1, NAV 2
  - Press Mkr (M) to enable audio
4. Brief appropriate Approach plate
5. Contact Miami Approach – 125.5, place 118.9 (TMB) in standby:
  - A. State who you are**        Cessna 739AR
  - B. Where you are**        10 miles west of TMB
  - C. Everything you want**        Request multiple approaches into TMB to a full stop
6. Slow aircraft

## ILS Approach into TNT

**Two Types of Approaches:**

1. **Full** approach



5 Ts	
Task	Description
Turn	To intercept radial (30° intercept)
Time	Start when wings are level or abeam fix, whichever is <b>last</b>
Twist	Turn VOR to radial to intercept or ADF to heading
Throttle	10 knots above approach speed
Talk	Procedure turn inbound

**A. Contact Miami Approach on 125.5 and state the following:**

*Note: Instructor should play the part of Miami Approach*

- **Position** : Approx 8 miles SW of TMB
- **Altitude** : 2000ft
- **Heading** : 240
- **Request** : (request a squawk code for GPS/ILS Approach, etc)

**B. Miami Approach will then give a squawk code and say:**

*(Your responses to Miami Approach are the blocked text)*

- You are 8 miles from MONRY
- Proceed,
- You are  to Runway 9R
- Maintain  until established

- Report procedure turn inbound

**C. Before reaching MONRY (Inbound), Miami Approach will tell you:**

- Contact TOWER or CTAF (Make sure that you ask for a hand-off **before** MONRY)

**D. You must then contact tower or CTAF and say:**

- Inbound on the ILS/NDB, full stop or low approach

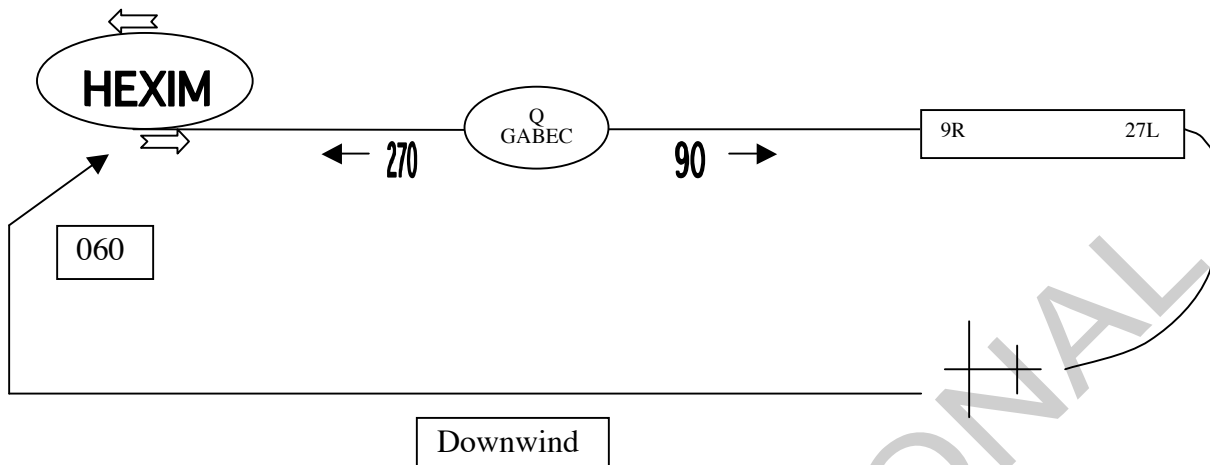
**E. Tower will respond:**

- Report MONRY
- Cleared for the ILS/NDB

## **2. Radar Vectors for a straight – In Approach**

Air Traffic Controllers do this approach 100% of the time at all the Class B airspace.

This approach is similar to a normal traffic pattern. Controllers set you up on a downwind and then on to a base and then give you a heading to intercept the final approach course at a 30° intercept angle.



### Final Clearance:

#### A. After contacting Miami Approach, they will say the following:

(your responses to Miami Approach are the blocked text)

- You are 5 miles from GABEC
- Turn right heading  to intercept the localizer
- Maintain  until established
- 

#### B. Before reaching Qeezy, Miami Approach will tell you:

- Contact TMB 118.9 (Make sure that you ask for a hand-off before Qeezy)

#### C. You must then contact TMB Tower and say:

- 

#### D. They will respond:

- Report GABEC
- Cleared for the ILS/GPS, 9R

### GPS Approach:

D  KTMB

Select Approach then

ILS 09R  
NDB 09R  
GPS

Vectors

**GABEC**

**ENT**

**LOAD  
ACTIVATE**

**ENT**

**GPS is for Guidance**

**ENT**

**PROC**

**Activate Vectors to FINAL**

**ENT**

- ❖ **ILS frequency automatically comes out on inactive mode. Switch to active and change from GPS mode to VLOC mode.**
- ❖ **Set up OBS with CDI to 090°.**

DEAN INTERNATIONAL