International Virtual Aviation Organisation

Navigation Exercise

Indonesia Division

Friday, 18th April 2025

Special Operations Department

International Virtual Aviation Organisation

1. General

1.1 Overview

This event simulates a fundamental navigation exercise, mirroring the syllabus of air force academy training. Navigation exercises are crucial in aviation for pilots to develop and maintain proficiency in navigating without relying solely on GPS or other modern electronic aids. This exercise focuses on traditional navigation methods, emphasizing the use of ground-based radio navigation aids like VOR (VHF Omnidirectional Range), NDB (Non-Directional Beacon), and TACAN (Tactical Air Navigation, if applicable in the region). It aims to enhance pilots' understanding of flight planning, dead reckoning, and radio navigation techniques, fostering situational awareness and decision-making skills in a simulated environment.

1.2 Scenarios

The navigation exercise will involve a short-range flight from Adisucipto Airbase (WAHH) in Yogyakarta to Juanda Airbase (WARR) in Surabaya, Indonesia. Participants will be tasked with:

- **Short-Range Navigation:**
  - Utilizing VOR and NDB signals for course guidance.
  - Performing timed turns and calculating ground speed.
  - Executing position fixes using cross-bearings.
  - Maintaining accurate heading and altitude.
- **Flight Planning:**
  - Pre-flight planning, including route calculation using aeronautical charts.
  - Calculating fuel consumption and time en route.
  - Creating a detailed flight log.
- **Radio Navigation:**
  - Interpreting and utilizing VOR radials and NDB bearings.

  - Tuning and identifying navigation aids.
  - If applicable in the region, utilization of TACAN, for distance and bearing information.
- **Dead Reckoning:**
  - Utilizing heading, airspeed, and time to estimate position.
  - Accounting for wind effects.
  - Maintaining situational awareness of position relative to planned route.

2. Objectives

2.1 Gain Navigation Skills

- To enhance proficiency in using VOR, NDB, and TACAN (if available) for navigation.
- To improve flight planning and flight log maintenance.
- To develop skills in dead reckoning and position fixing.
- To increase understanding of radio navigation principles.

2.2 Improve Aviation Skills

- To enhance situational awareness and decision-making in a simulated flight environment.
- To improve communication with air traffic control (ATC) within the IVAO network.
- To refine basic instrument flying skills and aircraft handling.
- To increase proficiency in basic flight procedures.

3. Date & Time

Date : Friday, 18th April 2025

Time : 12:00z - 16:00z

4. Airframes

Basic/advanced trainer aircraft (low wing) ie. KT-1B, G-120TP Grob, PC-9 etc.

5. Guidelines

5.1 Pilots

5.1.1. Pilots must have an in-depth understanding of emergency procedures.

5.1.2. Pilots shall Adhere to air traffic control instructions.

5.1.3. Pilots shall Maintain effective communication.

5.1.4 Pilots shall follow GAT procedures before entering the Area of Responsibility.

5.1.5 Pilots shall familiarize themselves with local procedures.

5.1.6 Pilots Must Register on The **SOD Website**.

5.2 Controllers

5.2.1 Controllers Must Have An In-Depth Understanding Of The Exercises And Phraseology Of Special Exercises

5.2.2 Controllers Should Be Understanding And Accommodating Of Pilots Who Are Unfamiliar With Special Exercise Phraseology And Procedures And Should Assist Where Possible.

5.2.3 Controllers Must Use Clear English When There Is An Apparent Misunderstanding In Instructions.

5.2.4 Controllers Must Register On The **SOD Website**.

5.3 Controllers Position

The following positions will be available during the event:

Position	Callsign	Frequency
WAHH_TWR	Adi Tower	122.400 MHZ
WAHH_APP	Yogyakarta Approach	123.400 MHZ
WAAF_W_CTR	Ujung Control	128.300 MHZ
WARR_W_APP	Surabaya Radar	123.200 MHZ
WARR_APP	Surabaya Approach	124.500 MHZ
WARR_TWR	Juanda Tower	118.300 MHZ
WAHH_MIL_APP	Yogya Military Radar	120.200 MHZ

5.4 Rules

5.3.1 Pilots must park on the ramp with engines off before contacting ATC or at the start of the event.

5.3.2 Pilots are not permitted to exceed mach 0.70 at any time during the event unless granted permission by ATC.

5.3.3 All intra-flight communications shall be conducted via the discord event channels in accordance with event guidelines.

6. Assistance

6.1 Communication Center

Leading up to this event, you can contact the special operations staff using the following means:

- Discord : https://sod.ivao.aero/discord (Family Discord)
- Forum : https://forum.ivao.aero/
- Email : sod@ivao.aero, soad@ivao.aero soa4@ivao.aero, id-soc@ivao.aero

6.2 Documentations

The Following Areas For Documentations Are Available Below:

- General Special Operations Pilots & Controller
- Brevity Code

7. Missions Details

7.1 Overview

The primary mission is a navigation flight from Adisucipto Airbase (WAHH) to Juanda Airbase (WARR). Pilots will navigate utilizing available radio navigation aids, specifically:

- JOG VOR (Yogyakarta)
- SLO VOR (Solo)
- PI NDB (Pacitan)
- ANY VOR (Anyer)
- BA NDB (Bangkalan)
- SBR VOR (Surabaya)

Pilots will be expected to utilize these aids, in conjunction with dead reckoning, to maintain their planned course and accurately determine their position throughout the flight.

7.2 Flight Planning & Routes

Pilots are required to create a detailed flight plan, including:

- Route planning using aeronautical charts, identifying relevant VOR and NDB frequencies and radials/bearings.
- Calculation of true airspeed, ground speed, and estimated time en route (ETE) for each leg of the flight.
- Determination of magnetic headings, accounting for magnetic variation.
- Fuel planning, including fuel required for the flight and reserve fuel.
- Completion of a detailed flight log, including planned headings, times, distances, and radio frequencies.
- Pilots are expected to calculate wind correction angles, and adjust headings accordingly.
- Altitude planning, maintaining appropriate altitude for the route flown.
- Alternative airport planning, in case of unexpected circumstances.

Flightplan :

- WAHH **SLO** DCT **PI** DC **BA** DCT WARR
- WARR **SBR290/100** DCT **PI** DCT **SLO** DCT WAHH

Pilots required fly from WAHH to WARR then back to WAHH

Please do not disconnect after landing at Juanda, just change the flight plan

Pay attention to speed, altitude, and estimate time enroute, ATC may ask and give some exercise in the middle of flight.

8. Airfields Information

8.1 Runway

Adisucipto Airbase (WAHH)

Runway	Length	Nav
27/09	2200 m	JOG VOR 112.800 MHZ

Juanda Airbase (WARR)

Runway	Length	Nav
28/10	3000 m	SBR VOR 113.400 MHZ

8.2 Scenery

Here is the scenery for multiple platform

Platform	Links
FS9, FSX, P3D	Link 1, Link 2 (P3D only),
MSFS20/24	Link 1 (Not Tested in MSFS2024)
X-Plane 11/12	Link 1 (Not Tested in X-Plane 12)

8.3 Chart

AIM Indonesia **check here** **required login*

Update log

Ver.	Date	Name	Overview of changes
1.0.	02APR2025	Fida Perkasa (SOA4/ID-SOC)	Initial Release