

NAVAL AIR TRAINING COMMAND



NAS CORPUS CHRISTI, TEXAS

CNATRA P 492 (Rev 04-23)

STUDENT GUIDE



GENESYS BASIC INSTRUMENT AVIONICS TRAINER SELF-STUDY 3

2023



DEPARTMENT OF THE NAVY

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Subj: STUDENT GUIDE FOR GENESYS PRIMARY FLIGHT DISPLAY AND
MULTI FUNCTION DISPLAY BASIC INSTRUMENT AVIONICS TRAINER SELF-
STUDY 3

1. CNATRA P-492 (Rev. 04-23) PAT, "Student Guide for Genesys Primary Flight Display (PFD) and Multi Function Display (MFD) Basic Instrument Avionics Trainer Self-Study 3" is issued for information, standardization of instruction, and guidance to all flight instructors and student military aviators in the Naval Air Training Command.
2. This publication will be used as an explanatory aid to the flight training curriculum. It will be the authority on the execution of all flight procedures and maneuvers herein contained.
3. Recommendations for changes shall be submitted via the electronic Training Change Request (TCR) form located on the Chief of Naval Air Training (CNATRA) Web site.
4. CNATRA P-492 (New 10-22) PAT is hereby cancelled and superseded.

A handwritten signature in black ink, appearing to read "S. A. Corey".

S. A. COREY
By direction

Releasability and distribution:

This instruction is cleared for public release and is available electronically only via Chief of Naval Air Training Issuances Web site,
<https://flankspeed.sharepoint-mil.us/sites/CPF-CNATRA/SitePages/Publications.aspx>.

STUDENT GUIDE

FOR

TH-73A ADVANCED HELICOPTER TRAINING SYSTEM

GENESYS PRIMARY FLIGHT DISPLAY (PFD) &

MULTI FUNCTION DISPLAY (MFD)

BASIC INSTRUMENT AVIONICS TRAINER

SELF-STUDY 3

TH-73A



TERMINAL LEARNING OBJECTIVE

Terminal Learning Objective (TLO):

Upon completion of this self-study, the SNA will be able to set up the Genesys PFD/MFD for instrument departure and approach to the Western and Eastern Operating Areas.

HOW TO USE THIS STUDENT GUIDE

1. This self-study student guide is intended for use with the Part-Task Trainer (PTT) to improve your understanding of the Genesys displays and their functionality. The more you understand the Genesys menus before getting into the simulator or aircraft, the more you will be able to focus on improving basic air work and situational awareness during flight.
2. The Genesys software has several idiosyncrasies that can be frustrating if you have not interacted with the submenus. To familiarize yourself with the Genesys software, read and become familiar with the procedures in each chapter before getting into the simulator or aircraft.
3. While in the PTT, work through each scenario to perform the procedures detailed in the guide.
4. As you work through the steps of each procedure, develop a list of questions about anything that is unclear to you. This practice will allow you to ask questions at a later time with the instructor in a one-on-one setting.

LIST OF EFFECTIVE PAGES

Dates of issue for original and changed pages are:

Original 0 14 Oct 22 (this will be the date issued)

Revision ...1...4 Apr 23

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 48 CONSISTING OF THE FOLLOWING:

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COVER			
LETTER			
iii – x			
1-1 – 19			
1-20 (blank)			
2-1 – 16			
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A-2 (blank)			

CHANGE SUMMARY

The following changes have been previously incorporated into this document.

CHANGE NUMBER	REMARKS/PURPOSE

The following interim changes have been incorporated into this change/revision:

INTERIM CHANGE NUMBER	REMARKS/PURPOSE	ENTERED BY	DATE

TABLE OF CONTENTS

TERMINAL LEARNING OBJECTIVE	iv
HOW TO USE THIS STUDENT GUIDE	v
LIST OF EFFECTIVE PAGES	vi
CHANGE SUMMARY	vii
TABLE OF CONTENTS	viii
LIST OF FIGURES	ix
CHAPTER 1: GENESYS FLIGHT PREPARATION PROCEDURES	1-1
100. Introduction.....	1-1
101. Set up the PFD/MFD Display Units	1-1
102. Load a Flight Plan.....	1-4
103. Edit a Flight Plan	1-8
104. Tune the Radios	1-11
105. Load an Instrument Approach	1-12
CHAPTER 2: PRACTICE ACTIVITIES	2-1
200. Introduction.....	2-1
201. Activity #1: FLIGHT from KNDZ to KMGM	2-2
202. Activity #2: WABEN ONE Departure to Western Operating Area	2-5
203. Activity #3: BAWDI ONE Departure to Eastern Operating Area.....	2-8
204. Activity #4: Pick Up an Instrument Approach in Western Operating Area	2-11
205. Activity #5: Instrument Approach in Eastern Operating Area	2-14
APPENDIX A: AVIONICS SETUP FOR TAKEOFF	A-1

LIST OF FIGURES

Figure 1-1 PFD with Basic Mode and HSI.....	1-3
Figure 1-2 MFD with Half Engine and AUDIO/RADIO Display.....	1-4
Figure 1-3 Add Waypoints to a Flight Plan.....	1-6
Figure 1-4 Multiple Waypoints on a Flight Plan.....	1-7
Figure 1-5 Verify the Flight Plan by Viewing NAV LOG or MAP on the MFD.....	1-8
Figure 1-6 Editing a Flight Plan.....	1-9
Figure 1-7 IFR APPR Menu Option.....	1-14
Figure 1-8 Tune the NAVAIDs.....	1-15
Figure 1-9 OBS Menu.....	1-17
Figure 1-10 Set an Altitude Bug.....	1-18
Figure 1-11 Minimum Altitude Display.....	1-19
Figure 2-1 MFD and PFD Setup for the WABEN Departure.....	2-7
Figure 2-2 MFD and PFD Setup for the BAWDI ONE Departure.....	2-10
Figure 2-3 MFD and PFD Setup for the KNDZ TACAN RWY 32.....	2-13
Figure 2-4 PFD Setup for the NOLF Juniper VOR/DME A.....	2-16

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CHAPTER 1: GENESYS FLIGHT PREPARATION PROCEDURES

100. INTRODUCTION

This chapter provides the steps to prepare for a basic instrument flight. It includes setting up the display units, loading a flight plan, tuning the radios, loading an instrument approach, and tuning the Navigation Aides (NAVAID).

Upon the completion of Chapter 1, you will have accomplished the following objectives:

- Set up the standard display options on the PFD/MFD Display Units.
- Load, activate, and save a basic Flight Plan.
- Edit a Flight Plan by adding and deleting waypoints.
- Tune the Radios using the Radio or Channel modes.
- Load an Instrument Approach using the TIN-STM mnemonic.

101. SET UP THE PFD/MFD DISPLAY UNITS

For Basic Instrument (BI) simulator and flight events, the standard display unit setup includes the basic attitude display and Horizontal Situation Indicator (HSI) display on the PFD and the HALF ENGINE and Audio/Radio displays on the MFD.

MFD and PFD setting are in accordance with the phase of training.

To select the basic attitude display options in the top area of the PFD:

1. On the PFD, press the **MENU (R1)** button to display additional menu levels.
2. Press the **DCLTR (R4)** (Declutter) button within 10 seconds to enter the Attitude Indicator (AI) DCLTR menu.
3. Rotate **KNOB 1 (E1)** to cycle through the options.
4. Press **KNOB 1 (E1)** to select the following options. A check mark displays to confirm each selection and the data displays in the Primary Flight Indication (PFI) area.
 - **ANLG AGL:** Displays the Radio Altimeter (RADALT) on the lower right of the PFI with a green circular tape and digital readout in the center. The green tape disappears above 1,000 feet AGL.
 - **BASIC:** Displays a traditional attitude display with airspeed, altitude, and heading scales on the top half of the screen.
 - **TURN IND:** Displays a worm in the direction of turn with full-scale deflection indicating a standard rate turn and half-standard rate indicated at the mid-scale mark on the top half of the screen.
 - **FD2:** The FD will display the magenta horizontal and vertical steering commands on the attitude indicator on the top half of the screen.

5. Select **DONE** at the bottom of the menu and press **KNOB 1 (E1)** or press the **EXIT (R1)** button to close the menu.

To display the HSI option on the Bottom (BTM) area of the PFD:

1. On the PFD, press **KNOB 1 (E1)** to open the display menu.
2. Rotate **KNOB 1 (E1)** to cycle through the display options and press to select the **HSI** display option.
3. Depending on the NAVAIDs you intend to use, select the RMI needles. TCN1 and VOR1 cannot be selected at the same time.
4. Select **MENU (R1)**.
5. Select **DCLTR (R8)** for the bottom display.
6. Rotate and sequentially press **KNOB 1 (E1)** as required to ensure that checkmarks are displayed next to TCN1, VOR2, and LIN RAD ALT.
7. Select **DONE** at the bottom of the menu and press **KNOB 1 (E1)** or press the **EXIT (R1)** button.
 - The HSI option displays on the bottom area of the PFD (Figure 1-1).



Figure 1-1 PFD with Basic Mode and HSI

To display the HALF ENGINE option on the top area of the MFD:

1. On the MFD, press **KNOB 2 (E2)/TOP** to open the display menu.
2. Rotate **KNOB 2 (E2)** to highlight the **HALF ENGINE** option and press to select.
 - The menu closes and the HALF ENGINE option displays in the top area of the MFD.

To display the AUDIO/RADIO option on the bottom area of the MFD:

1. On the MFD, press **KNOB 1 (E1)/BTM** to open the display menu.
2. Rotate **KNOB 1 (E1)** to highlight the **AUDIO/RADIO** option and press to select.
 - The menu closes, and the selected option displays in the bottom area of the MFD (Figure 1-2).
 - You can change the MFD Top display to NAV LOG during an instrument approach at the Instructor's discretion.



Figure 1-2 MFD with Half Engine and AUDIO/RADIO Display

102. LOAD A FLIGHT PLAN

Correctly loading and editing a flight plan takes practice.

Begin by creating a new flight plan and then adding waypoints to the flight plan. There are many different ways to add waypoints to a flight plan. The following options filter the waypoints in the system.

- **NRST APT:** Displays a list of the 20 nearest airports from the last waypoint in the flight plan. Using the NRST function is a quick way to add the departure airport to a flight plan.
- **NRST VOR:** Displays a list of the 20 nearest VOR approaches with bearing and distance within 240 NM.
- **NRST NDB:** Displays a list of the 20 nearest NDBs with identifier, bearing, and distance within 240 NM.
- **NRST FIX:** Displays a list of the 20 nearest Air Traffic Control (ATC) fix names with identifier, bearing, and distance within 240 NM.

1-4 GENESYS FLIGHT PREPARATION PROCEDURES

- **NRST USR:** Displays a list of the 20 nearest user waypoints found within the search criteria.
- **AIRWAY:** Displays a list of the airways going through the highlighted waypoint. It offers the option to select the exit waypoint as well. The button is not available unless it is a selectable option.
- **SEARCH:** Allows you to search for a waypoint using the first few letters or numbers of the waypoint identifier.

After entering the entire route of flight, do not forget to save and activate your flight plan!

To create a new flight plan:

1. On the MFD, press the **FPL (L1)** button.
2. Rotate **KNOB 1 (E1)** to select the **CREATE-EDIT** menu option.
 - The CREATE FLIGHT PLAN menu is selected.
3. Press **KNOB 1 (E1)** to enter menu.
 - CREATE FLIGHT PLAN is default selected.
4. Press **KNOB 1 (E1)** to create a new flight plan.

To add a waypoint to a flight plan using the NRST (Nearest) airport function:

1. Press the **ADD (R6)** button.
2. Press the **NRST APT (L6)** (Nearest Airport) button to display a list of the nearest airports from the last waypoint in the flight plan, not the current aircraft location.
3. Rotate **KNOB 1 (E1)** to scroll through the airports. Select KNDZ as the starting airport.
4. Press **KNOB 1 (E1)** to add the highlighted airport to the flight plan.

To add a waypoint to a flight plan using the Search function:

1. Press the **ADD (R6)** button.
2. Rotate **KNOB 1 (E1)** to highlight the letter or number of the preferred waypoint identifier and press to select the option. Repeat this step to select the next letter or number of the waypoint identifier. Search waypoint CEW.

Note: It is good practice to select the first three or four letters to narrow the search field before pressing **SEARCH (R4)**.

3. Press the **SEARCH (R4)** button to display a list of waypoints beginning with the selected letters or numbers.
4. Rotate **KNOB 1 (E1)** to scroll through the list of waypoints.
5. Press **KNOB 1 (E1)** to add the highlighted waypoint to the flight plan (Figure 1-3).

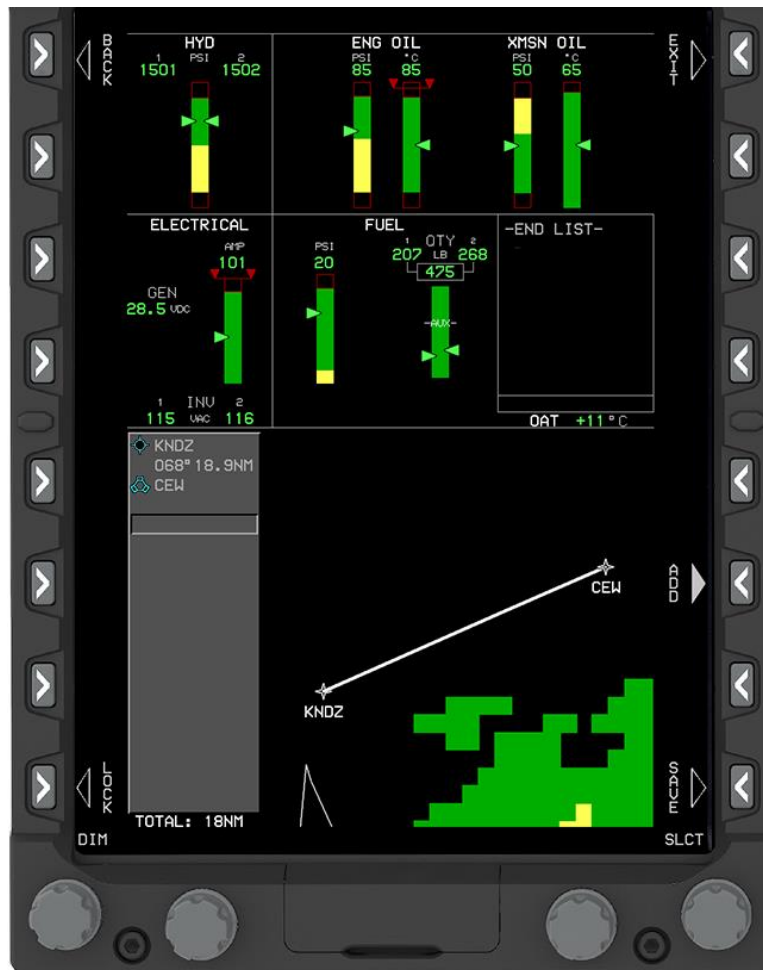


Figure 1-3 Add Waypoints to a Flight Plan

6. Continue adding waypoints to the flight plan, as necessary. For this example, as seen below in Figure 1-4, add:
 - ITUYU
 - ROMEK
 - PIGON
 - CHAFF
 - REDDI
 - KMGM

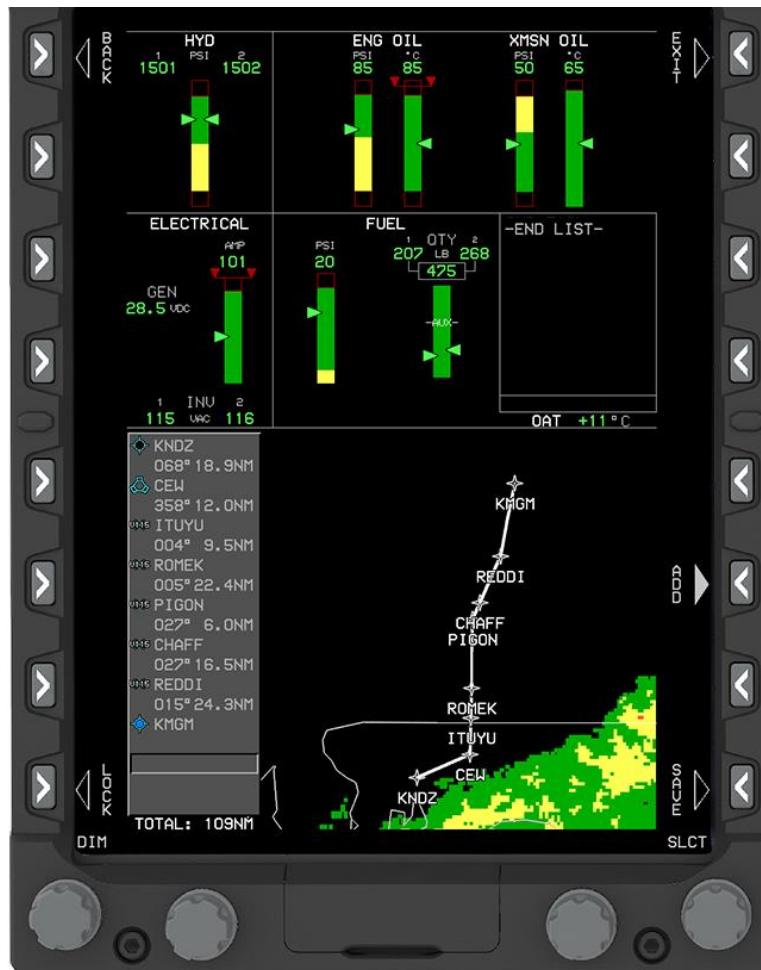


Figure 1-4 Multiple Waypoints on a Flight Plan

To save and activate a flight plan:

1. Press the **SAVE (R8)** button to save the flight plan to the system.
2. Rotate **KNOB 1 (E1)** to the **ACTIVATE FLIGHT PLAN** menu option and press to display a list of saved flight plans.
 - The flight plans are listed by departure and destination waypoints (usually airports).
3. Rotate **KNOB 1 (E1)** to highlight the flight plan to be activated and press to select.
4. Press the **EXIT (R1)** button to close the flight plan menu.

To verify the flight plan:

1. Press **KNOB 2 (E2)/TOP** on the MFD.
2. Rotate **KNOB 2 (E2)** to NAV LOG or MAP and press to select.
3. Verify the flight plan (Figure 1-5).



Figure 1-5 Verify the Flight Plan by Viewing NAV LOG or MAP on the MFD

4. Change the display to HALF ENGINE on the top of the MFD.

103. EDIT A FLIGHT PLAN

Editing a flight plan allows you to add and delete waypoints from an active flight plan.

To add a waypoint or waypoints to an active flight plan:

1. On the MFD, press the **ACTV (L2)** button.
2. Rotate **KNOB 1 (E1)** to highlight the location where the waypoint is to be added. The waypoint will be inserted above the highlighted waypoint. In this case, the yet to be selected new waypoint will be inserted above CEW (Figure 1-6).

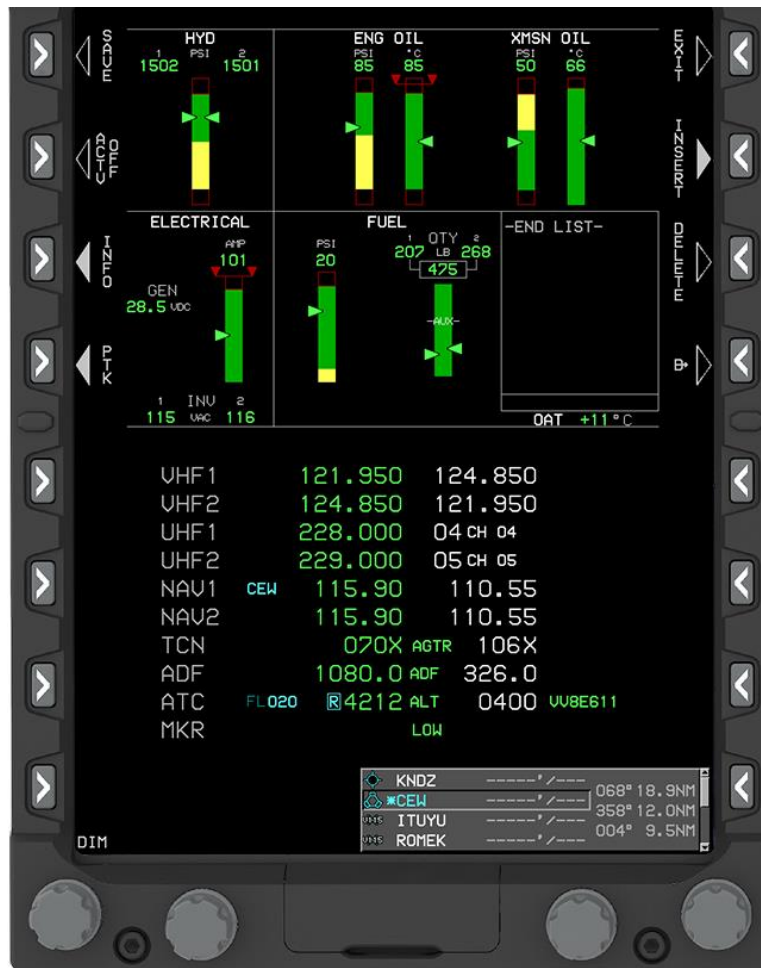


Figure 1-6 Editing a Flight Plan

3. Press the **INSERT (R2)** button.
4. To begin the selection of which waypoint you want to add, choose one of the following buttons to display a list of sorted waypoints.
 - **NRST APT (L2):** Displays the 20 nearest airports with name, bearing, and distance within 240 NM.
 - **NRST VOR (L3):** Displays the 20 nearest VORs with bearing and distance within 240 NM.
 - **NRST NDB (L4):** Displays the 20 nearest NDBs with identifier, bearing, and distance within 240 NM.
 - **NRST FIX (R2):** Displays the 20 nearest ATC fix names with identifier, bearing, and distance within 240 NM.
 - **NRST USR (R3):** Displays the 20 nearest user waypoints found within the search criteria.
 - **AIRWAY (R4):** Displays the airways going through the highlighted waypoint.

5. In this example, we want to add Peter Prince Field Airport. As such, press **NRST APT (L2)**.
6. Rotate **KNOB 1 (E1)** to highlight **2R4** (Peter Prince) and press to add the waypoint to the flight plan.
7. Press the **EXIT (R1)** button to close the flight plan menu.
8. If the intention is to save the modified flight plan, press the **SAVE (L1)** button.
 - If the new flight plan has the same departure and arrival airports as one already saved in the flight plan list, it will be denoted with a (1), (2), etc. in the list of flight plans. For example, KNDZ-KCEW (1). The highest number is the newest flight plan.
 - Saving the flight plan is not recommended unless you need both the original and the modified flight plan. Saving each modification of an active flight plan will create multiple flight plans.

To delete a waypoint from an active flight plan:

If the waypoint to be deleted is part of a procedure, such as an instrument approach, the entire procedure will be deleted when the waypoint is deleted.

1. Press the **ACTV (L2)** button.
2. Rotate **KNOB 1 (E1)** to highlight the waypoint to be deleted. Select **2R4** (Peter Prince).
3. Press the **DELETE (R3)** button (Figure 1-6).
 - The CONFIRM DEL WPT prompt displays.
4. Rotate **KNOB 1 (E1)** to highlight the **CONFIRM DEL WPT** option and press to select.
 - The waypoint is removed from the flight plan.
5. Press the **EXIT (R1)** button to close the flight plan menu.

To save a modified flight plan:

When you change an active flight plan, there will be an option to save the modified flight plan. Saving the modified flight plan is not recommended unless the pilot needs both the original and the modified flight plan. Saving each modification of an active flight plan will create multiple flight plans.

1. If the original flight plan will be used again later, press the **SAVE (L1)** button to save the modified flight plan.
 - If the new flight plan has the same departure and arrival airports as one already saved in the flight plan list, it will be denoted with a (1), (2), etc. in the list of flight plans, such as KNDZ-KCEW (1).
2. If the change is a modification for the current flight only, press the **EXIT (R1)** button to close the flight plan menu.

104. TUNE THE RADIOS

The radio frequencies can be tuned in multiple ways:

- If the radio frequency is Very High Frequency (VHF), tuning can be done via the Radio menu, via the Active Flight Plan page, or by using the NRST function.
- If the radio frequency is UHF, tuning must be done via the Radio menu.
- Naval Air Station (NAS) South Whiting Field (KNDZ) Ultra High Frequency (UHF) preset frequencies can be tuned using Channel mode.

To tune a UHF radio frequency in Channel mode via the Radio menu:

1. On the MFD, Press the **RADIO (L7)** button.
2. Rotate **KNOB 1 (E1)** to highlight the radio to be tuned (UHF1 or UHF2).
3. Press **CH MODE (R4)** to change the radio inputs from Frequency mode to Channel mode.
 - In Channel mode, the pilot can scroll through and load one channelized frequency at a time.
4. Rotate **KNOB 2 (E2)** to the preferred channel.
 - Consider leaving the Radio menu open while listening to Automatic Terminal Information System (ATIS) to quickly change the radio to the next frequency when ATIS is complete.
5. Press the **EXIT (R1)** button to close the Radio menu.
 - The UHF2 and VHF2 active frequencies display at the top of the right seat PFD in the radio frequency panel.
 - The UHF1 and VHF1 active frequencies display at the top of the left seat radio frequency panel.

To tune a VHF radio frequency via the Active Flight Plan page:

1. On the MFD, press the **ACTV (L2)** button.
2. Rotate **KNOB 1 (E1)** to scroll through the flight plan to highlight the preferred airport.
3. Press the **INFO (L3)** button.
4. Rotate **KNOB 1 (E1)** to highlight the desired frequency.
5. Press the **COM1 ACTV (L5)**, **COM2 ACTV (L6)**, **COM1 STBY (R5)**, or **COM2 STBY (R6)** buttons to place the radio frequency into the preferred comm source:
 - COM1 ACTV and COM1 STBY will place the frequency in VHF1 ACTV and VHF1 STBY.
 - COM2 ACTV and COM2 STBY will place the frequency in VHF2.
 - If the selected frequency is already loaded into one of the radios, the ACTV and/or STBY line select keys will not be available wherever it is already loaded.

6. Press the **EXIT (R1)** button to close the menu.
7. If you need to move the **STBY** frequency to the **ACTV**, press the **RADIO (L7)** button to open the Radio menu.
8. Rotate **KNOB 1 (E1)** to highlight the **COM** source.
9. Press the **SWAP (R8)** button.
10. Press the **EXIT (R1)** button to close the menu.

To tune a radio frequency using the NRST function:

1. Press the **NRST (R3)** button.
2. Rotate **KNOB 1 (E1)** to highlight **APT** and press to select.
3. Rotate **KNOB 1 (E1)** to highlight the preferred airport.
 - DO NOT press **KNOB 1** to select the airport. Pressing **KNOB 1** will result in a direct-to the selected airport, deleting the active flight plan.
 - Press the **COM1 ACTV (R5)**, **COM2 ACTV (R6)**, **COM1 STBY (L5)**, or **COM2 STBY (L6)** buttons to place the VHF TWR frequency in the selected comm source.
4. Press the **INFO (L7)** button.
5. Rotate **KNOB 1 (E1)** to scroll through the airport information until the desired radio frequency is highlighted.
6. Press the **COM1 ACTV (L5)**, **COM2 ACTV (L6)**, **COM1 STBY (R5)**, or **COM2 STBY (R6)** buttons to place the VHF radio frequency into the preferred comm source.
 - **COM1 ACTV** and **COM1 STBY** will place the frequency in **VHF1 ACTV** and **VHF1 STBY**.
 - **COM2 ACTV** and **COM2 STBY** will place the frequency in **VHF2**.
7. Press the **EXIT (R1)** button to close the menu.
8. If you need to move the **STBY** frequency to the **ACTV**, press the **RADIO (L7)** button to open the Radio menu.
9. Rotate **KNOB 1 (E1)** to highlight the **COM** source.
10. Press the **SWAP (R8)** button.
11. Press the **EXIT (R1)** button to close the menu.

105. LOAD AN INSTRUMENT APPROACH

Use the TIN-STM mnemonic to help you remember how to set up an instrument approach. TIN-STM stands for:

- **Tune** the NAVAID.
 - Tuning a NAVAID can be done using the Radio menu or the NRST function.

1-12 GENESYS FLIGHT PREPARATION PROCEDURES

- **Identify** the NAVAID.
 - After tuning the NAVAID, the NAVAID must be identified to verify operation. The NAVAID can be identified using the Automatic ID function (when available) or by listening to the Morse code identifier.
 - If the system can positively identify the NAVAID, the NAVAID identifier will appear in cyan next to the NAVAID frequency at the top of the PFD in the radio frequency panel.
- Display the **needles**.
- **Select** the navigation source.
 - Before executing an instrument approach, the correct navigation source must be selected for the course needle on the HSI.
- **Twist** the OmniBearing Selector (OBS) course.
 - After the navigation source has been selected, the course needle must be twisted into the preferred heading.
- Set the **minimum** bug.
 - The MDA must be set to ensure audio tones at the appropriate altitude. Minimums can be set on the PFD side only.

To load an instrument approach:

1. On the MFD, press the **ACTV (L2)** button.
2. Rotate **KNOB 1 (E1)** to highlight KMGM airport and press to select.
3. Rotate **KNOB 1 (E1)** to highlight **IFR APPR** and press to select (Figure 1-7).

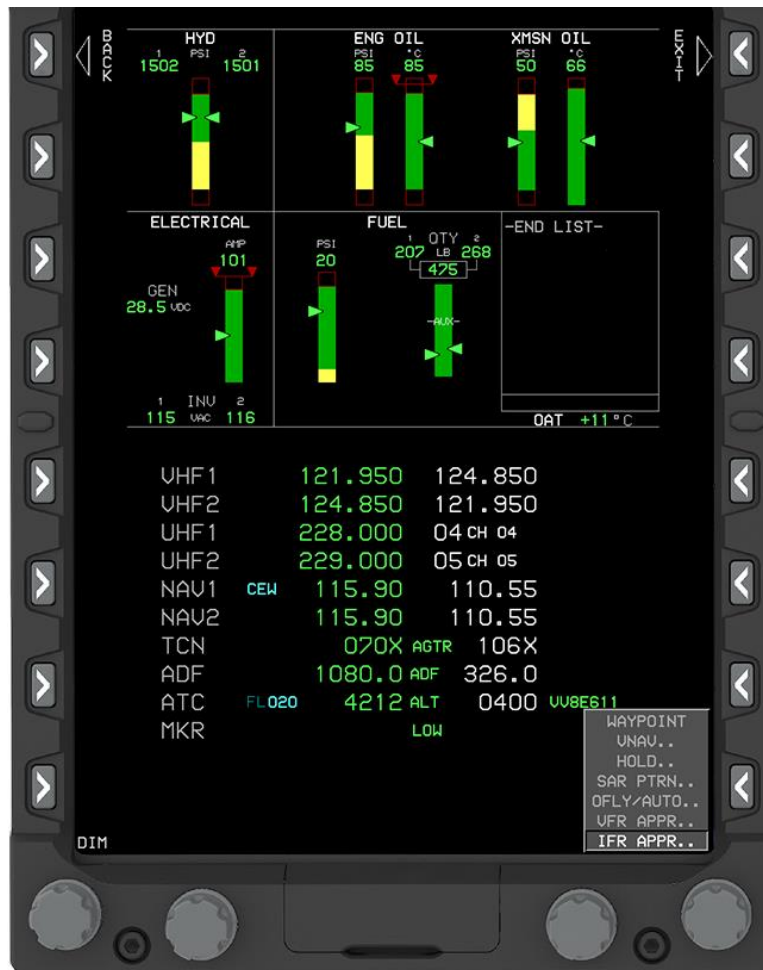


Figure 1-7 IFR APPR Menu Option

4. Rotate **KNOB 1 (E1)** to highlight the preferred approach and press to add it to the flight plan. Highlight VORA. Use IAF *SHADY. Use RW03.
5. Rotate **KNOB 1 (E1)** to highlight the preferred transition. An <*> indicates the most logical transition from the aircraft's current position.
6. Press **KNOB 1 (E1)** to add the transition to the flight plan.
7. Rotate **KNOB 1 (E1)** to highlight the landing runway and press to add it to the flight plan.
8. Press the **EXIT (R1)** button to close the menu.
 - If the approach includes a required holding pattern or a procedure turn, the waypoint will appear in the flight plan twice.
 - The first entry is the holding pattern or procedure turn.
 - The second entry is the waypoint that will sequence to the rest of the approach.

To tune the NAVAID via the Radio menu:

Tuning a NAVAID can be done using the Radio menu.

1. ON the MFD, press the **RADIO (L7)** button.
2. Rotate **KNOB 1 (E1)** to highlight the NAVAID to be tuned (NAV1, NAV2, TCN, or ADF).
3. Rotate **KNOB 2 (E2)** and **KNOB 3 (E3)** to adjust the standby frequency (Figure 1-8).



Figure 1-8 Tune the NAVAIDs

4. Press the **SWAP (R8)** button to switch the active and standby frequencies.
 - The active NAV 1 frequency displays at the top of the copilot's PFD.
 - The NAV 2 frequency displays at the top of the pilot's PFD in the radio frequency panel.
 - The Tactical Air Navigation (TACAN) frequency displays on both PFDs.
5. Press the **EXIT (R1)** button to close the menu.

To tune the NAVAID using the NRST function:

1. Press the **NRST (R3)** button.
2. Rotate **KNOB 1 (E1)** to highlight the type of NAVAID (VOR, ILS, or NDB).
 - **DO NOT press KNOB 1** to select the NAVAID. Pressing KNOB 1 will result in a direct-to the selected NAVAID, thus deleting the active flight plan.
3. If the preferred NAVAID is not the closest, rotate **KNOB 1 (E1)** to search for the preferred NAVAID in the list.
4. Press the **NAV1 ACTV (L5)**, **NAV2 ACTV (L6)**, **NAV1 STBY (R5)**, or **NAV2 STBY (R6)** buttons, as required, to place the NAVAID frequency in the preferred navigation source.
 - The active NAV 1 frequency displays at the top of the copilot's PFD.
 - The NAV 2 frequency displays at the top of the pilot's PFD in the radio frequency panel.
5. Press the **EXIT (R1)** button to close the menu.

Note: Press **INFO (L3)** for additional information regarding the VOR, ILS, or NDB as desired. For example, the information provided for an ILS includes the ILS frequency, FAC and GS, and ILS identifier.

To identify the NAVAID by listening to the Morse code identifier:

If the system can positively identify the NAVAID, the NAVAID identifier will appear in cyan next to the NAVAID frequency at the top of the PFD in the radio frequency panel.

1. Press the appropriate source (NAV1 or NAV2) Volume knob on the Audio Control Panel to receive transmissions from the NAVAID.
2. Press the Volume knob again to stop listening to the ID.

To display the needles on the PFD to use with the NAVAID:

1. On the PFD, press the **MENU (R1)** button to display additional menu levels.
2. Within 10 seconds, press the **DCLTR (R8)** button.
3. Rotate **KNOB 1 (E1)** to highlight a display option (PTR ADF1, PTR TCN1, PTR VOR1, PTR VOR2, LIN RAD ALT) and press to select. Multiple options can be selected, however, TCN1 and VOR1 cannot be selected at the same time.
 - The selected needles display on the HSI only if the NAV system is receiving a signal from a NAVAID. If no valid signal is present, the needles will not display.
4. Press the **EXIT (R1)** button to close the menu.

To select the navigation source:

1. On the PFD, press the **OBS (L4)** button.
2. Press the **NAV FMS (L2)** button to display the OBS menu (Figure 1-9).

- The L2 button displays the active navigation source, so it may be labeled FMS, VLOC1, VLOC2, or TCN1.



Figure 1-9 OBS Menu

3. Rotate **KNOB 1 (E1)** to highlight the preferred navigation source and press to select.
 - The current course needle source displays in the top half of the HSI and at the bottom of the PFI (Figure 1-9).

To twist the OBS course:

1. Rotate **KNOB 1 (E1)** to the preferred course.
 - The selected OBS course displays in the top half of the HSI and at the bottom of the PFI.
 - With FMS selected as the navigation source and active waypoint, the OBS will be set automatically to the next active waypoint in the flight plan. You can change the OBS course manually by selecting the **OBS MANUAL (R4)** button and making adjustments.

2. Press the **OBS SYNC (R3)** button to sync the OBS course to the direct bearing to the OBS NAV Source.
3. Press the **EXIT (R1)** button to close the menu.

To set the minimum bug:

1. Press the **MENU (R1)** button to display additional menu levels.
2. Press the **BUGS (R2)** button.
3. Press the **MINS (R3)** button.
4. Rotate **KNOB 1 (E1)** to highlight the **MIN ALT** (Minimum Altitude) menu option (Figure 1-10) and press to select. The MIN ALT bug allows you to set a BARALT bug for MSL altitudes (MDA/DA).



Figure 1-10 Set an Altitude Bug

5. Rotate **KNOB 1 (E1)** to select the preferred altitude. Set a MIN ALT of 700.
6. Press the **EXIT (R1)** button to close the menu.

- The minimum altitude displays in white above the Barometric Altimeter (BARALT) tape (Figure 1-11), which turns yellow below the minimum altitude.



Figure 1-11 Minimum Altitude Display

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CHAPTER 2: PRACTICE ACTIVITIES**200. INTRODUCTION**

This chapter provides the practice activities you must complete to familiarize yourself with the procedures needed to prepare for BI events. Work through each scenario by completing the procedures that are detailed in the first chapter of this guide. Remember to always use WRNTB and TIN-STM when setting up an approach and departure.

The student departures and approaches are found in COMTRAWINGFIVEINST 3710.25 Student Radio Instrument Approach and Departure Plates. This document is loaded into SCORMCLOUD2 under the folder “Common Pubs.”

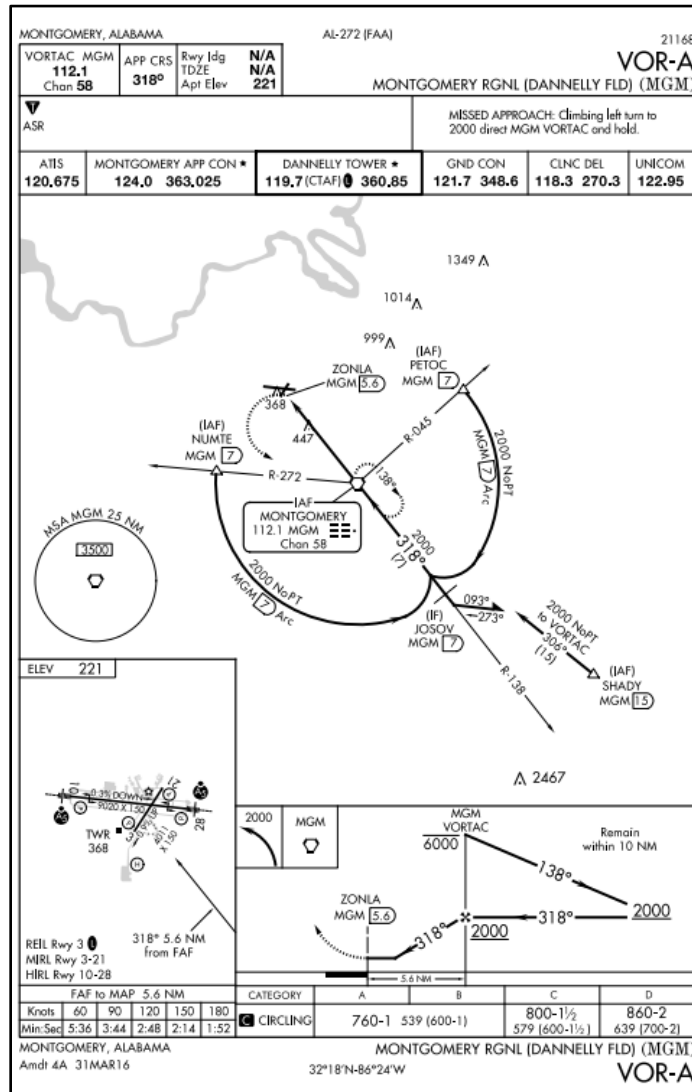
Upon the completion of Chapter 2, you will have accomplished the following objectives:

- Set up the PFD/MFD Display Units for a flight to and from NAS South Whiting Field (KNDZ).
- Load a Flight Plan for a WABEN ONE departure to the Western Operating Area.
- Load a Flight Plan for a BAWDI ONE departure to the Eastern Operating Area.
- Set up for an instrument TACAN RWY 32 approach at KNDZ.
- Set up the student instrument approach VOR/DME-A at Navy Outlying Field (NOLF) Juniper (KNJP).

201. ACTIVITY #1: FLIGHT FROM KNDZ TO KMGM

This activity allows you to practice all of the skills described in chapter 1.

You are flying from KNDZ to Montgomery Regional Airport (KMGM).



Set Up PFD/MFD Display Units

1. Select the PFD display options.
2. Select the MFD display options.

Load a Flight Plan

1. Create a new flight plan.
2. Add waypoints to the flight plan.
 - o KNDZ
 - o Crestview (CEW)

2-2 PRACTICE ACTIVITIES

- V115 (beginning at CEW and exiting at REDDI)
 - KMGM
3. Save and activate the flight plan.

Edit a Flight Plan

Now your Instructor wants you to add the BAKOS waypoint to the active flight plan.

1. Add BAKOS between KNDZ and CEW.
2. Delete REDDI from the active flight plan. You will exit V115 at CHAFF.

Tune the Radios

You are flying the route along V115 and the Instructor asks you to get KMGM weather information prior to making the instrument approach request.

1. Tune KMGM ATIS in VHF1 active.
 - KMGM ATIS: 120.675
2. Tune KMGM Tower frequency in VHF1 standby.
 - KMGM Tower: 119.7
3. Tune Montgomery Approach Control in VHF2 active.
 - Montgomery Approach: 124.0
4. Tune KMGM Ground Control in VHF2 standby.
 - KMGM Ground: 121.7

Set Up an Instrument Approach (using TIN-STM)

The Instructor wants you to fly the VOR-A approach at KMGM.

1. **Tune** the NAVAID into NAV1 and NAV2.
 - The helicopter's RMI VOR2 needle does not provide distance information, so it is good practice to tune NAV1 and NAV2 to the same frequency and use PTR VOR1 as the primary RMI needle.
 - MGM VORTAC 112.1
2. **Identify** the NAVAID.
 - Verify identification using the automatic ID function. If it does not show up, listen to the Morse code.

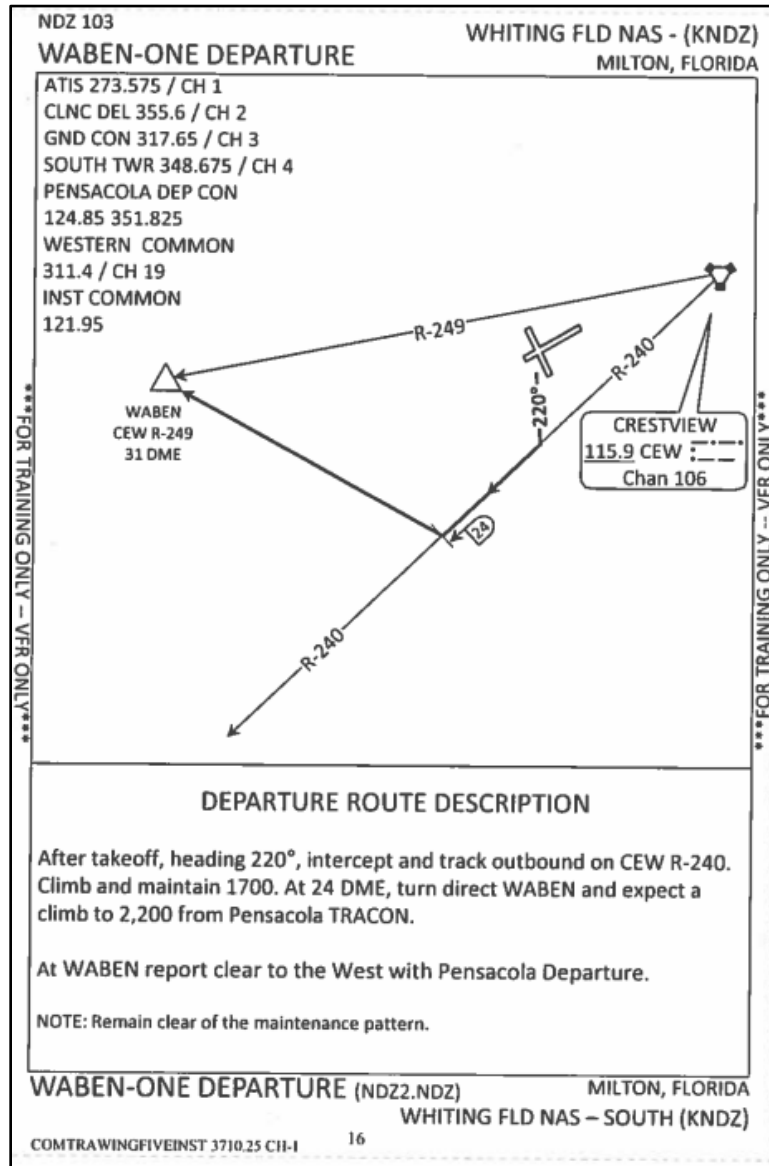
Note: Unless the trainer is "repositioned" near KMGM, neither the automatic ID function nor the Morse code will work but practice this step anyway to build good habits.
3. Display the **needle**.
 - PTR VOR1

4. **Select** the OBS source.
 - NAV VLOC2
5. **Twist** the course needle.
 - ATC is providing vectors-to-final, so twist the Final Approach Course (FAC) 318.
6. Set the **minimum** bug.
 - The MDA is 760 feet MSL, which is the circling minimum for the approach.

202. ACTIVITY #2: WABEN ONE DEPARTURE TO WESTERN OPERATING AREA

This activity allows you to practice tasks specific to BI flights.

Your Instructor wants you to fly the WABEN ONE Departure from KNDZ.

Load a Flight Plan

1. Create a new flight plan.
2. Add waypoints to the flight plan.
 - KNDZ
 - WABEN
 - NBJ
 - NAVIE

- KNDZ
- 3. Save and activate the flight plan.

Set Up the WABEN ONE Departure (using TIN-STM)

Since the CEW NAVAID is a VORTAC, the WABEN Departure may be flown using either the VOR or the TACAN.

1. **Tune** the NAVAID.
 - Tune the VOR frequency in NAV1 and NAV2 using the NRST VOR function.
 - CEW VOR: 115.9
 - Tune the TACAN using the Radio menu.
 - CEW TACAN: 106X
2. **Identify** the NAVAID.
 - If you are on deck at KNDZ and try to identify the CEW VORTAC, you may not get a signal until airborne. Look for the automatic ID next to the NAVAID information at the top of the PFD.
3. Display the **needles**.
 - If you are going to fly the departure using the TACAN, ensure PTR TCN1 is displayed.
 - If you are going to fly the departure using the VOR, ensure PTR VOR1 is displayed.
4. **Select** the navigation source.
 - The departure procedure requires you to intercept the CEW 240 radial outbound.
 - Select NAV VLOC1 or NAV TCN1 as navigation source.
5. **Twist** the course needle.
 - Twist 240 into the OBS course.
 - The pointer moves to show 240 outbound (Figure 2-1).

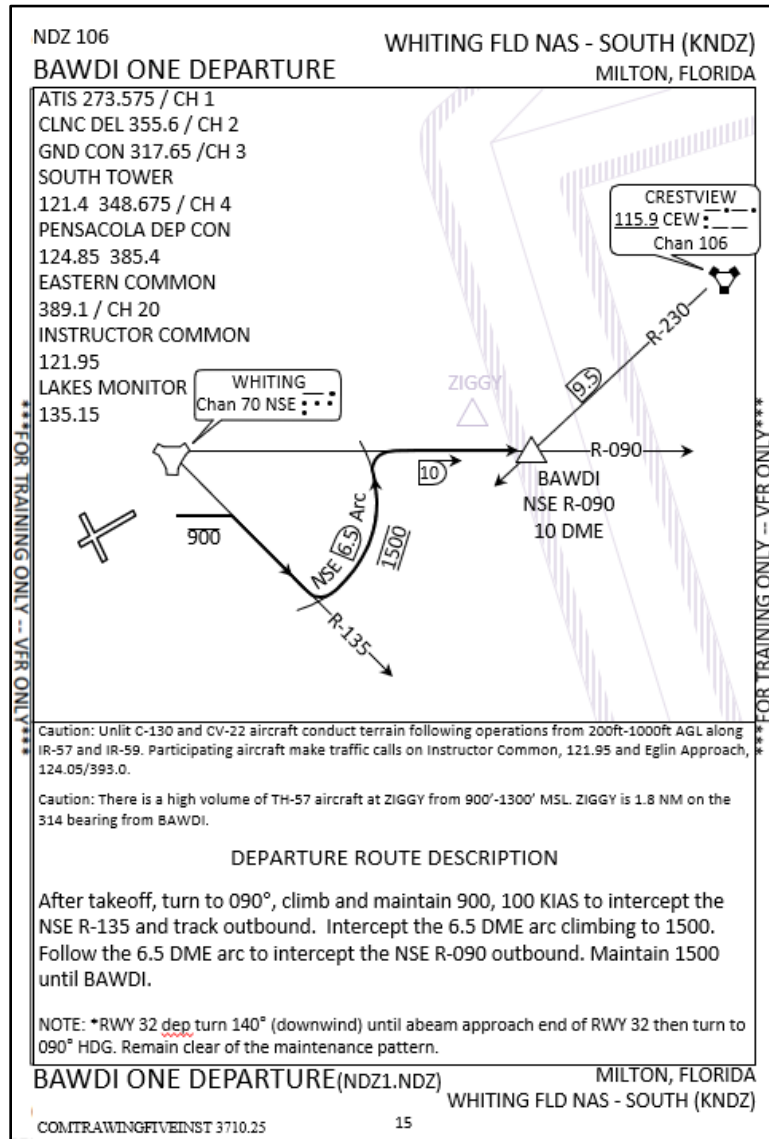


Figure 2-1 MFD and PFD Setup for the WABEN Departure

203. ACTIVITY #3: BAWDI ONE DEPARTURE TO EASTERN OPERATING AREA

This activity allows you to practice tasks specific to BI flights.

Your Instructor wants you to fly the BAWDI ONE Departure from KNDZ.



Load a Flight Plan

1. Create a new flight plan.
2. Add waypoints to the flight plan.
 - KNDZ
 - BAWDI
 - CEW
 - KNDZ

3. Save and activate the flight plan.

Set Up the BAWDI ONE Departure (using TIN-STM)

1. **Tune** the NAVAID.
 - To fly the BAWDI ONE Departure, you must tune the Whiting (NSE) TACAN and the CEW VOR. Set CEW VOR in both NAV 1 and NAV 2.
 - NSE TACAN: 70X
 - CEW VOR: 115.9
2. **Identify** the NAVAIDs.
 - Verify identification using the automatic ID function. This should work for 70X on deck at KNDZ because the TACAN station is nearby. You will not have reception to identify the CEW VOR until airborne.
3. Display the **needles**.
 - The BTM DCLTR menu should display the following:
 - PTR TCN1
 - PTR VOR2 (With DME available, the TACAN is the primary navigation information. PTR VOR2 is a backup to identify BAWDI.)
4. **Select** the navigation source.
 - Select NAV TCN1.
5. **Twist** the course needle.
 - Twist 135 into the OBS course.
 - The TACAN pointer moves to show 135 outbound (Figure 2-2).
 - The OBS source is set to TCN1, RMI needle one is set to the NSE TACAN, and RMI needle two is set to the CEW VOR.

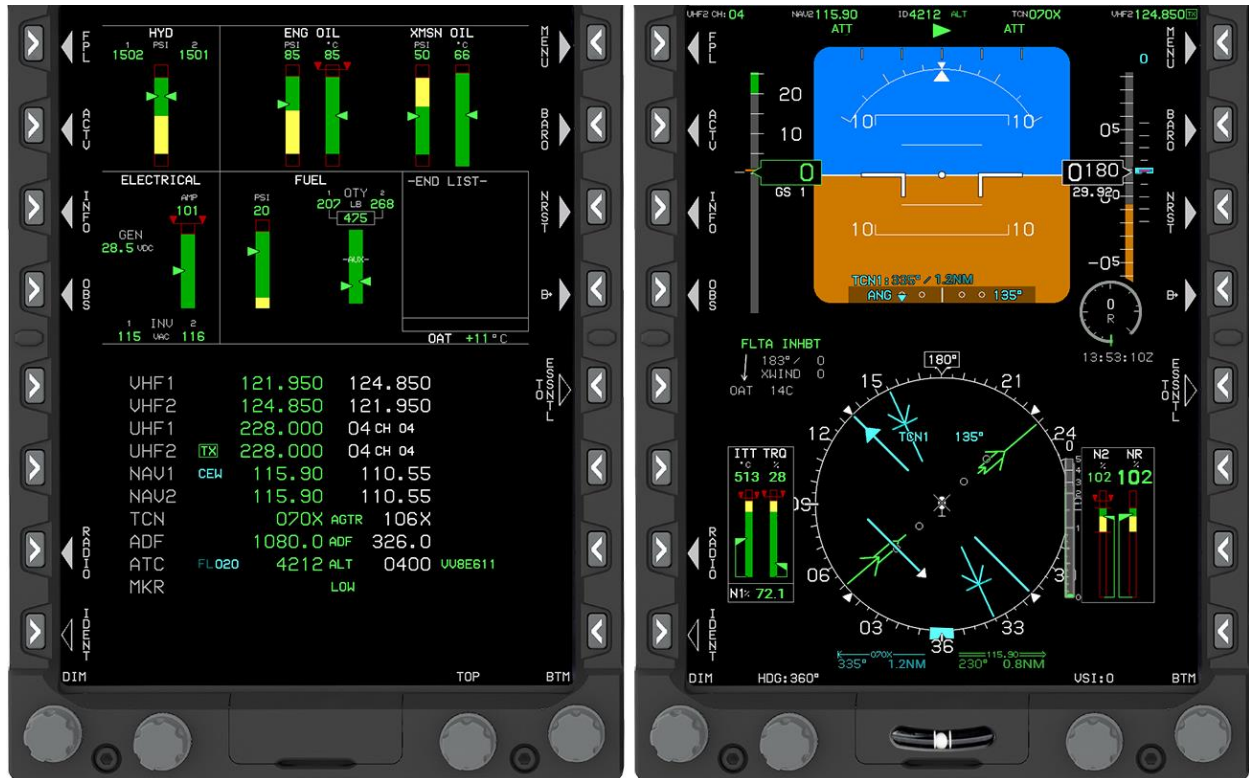
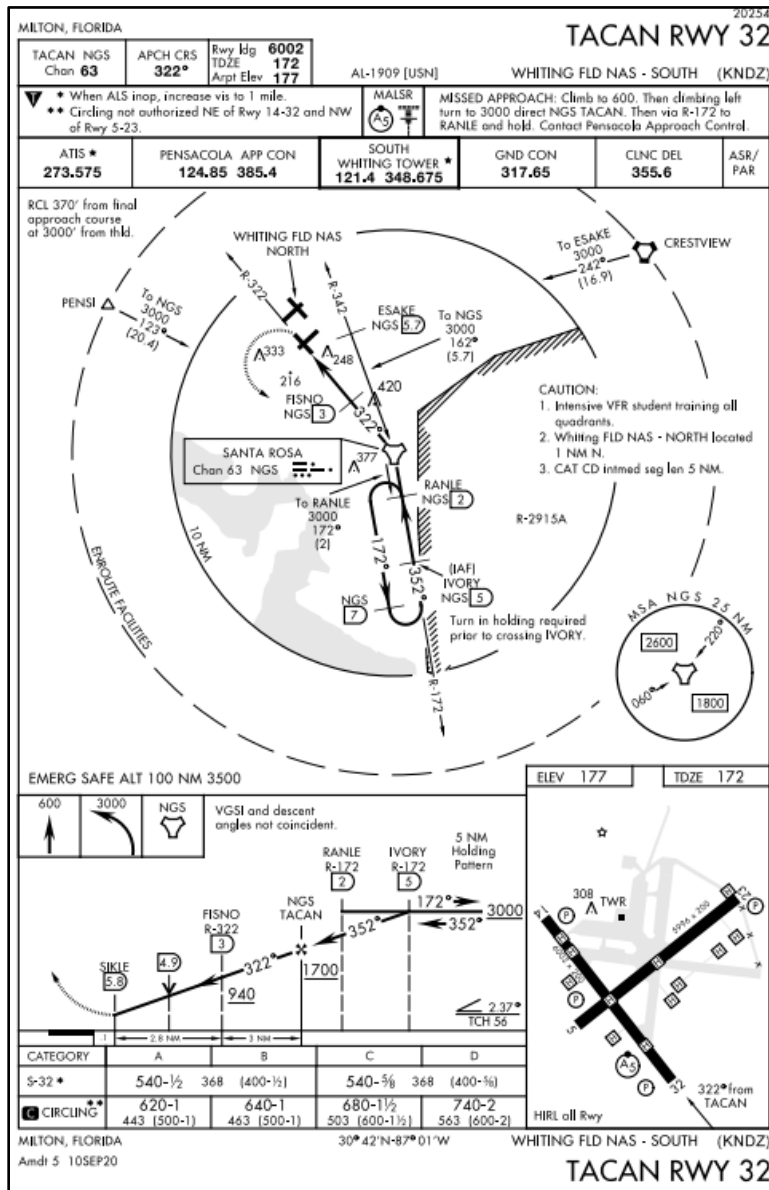


Figure 2-2 MFD and PFD Setup for the BAWDI ONE Departure

204. ACTIVITY #4: PICK UP AN INSTRUMENT APPROACH IN WESTERN OPERATING AREA

This activity allows you to practice tasks specific to BI flights.

Your Instructor wants you to set up the TACAN RWY 32 at KNDZ. First you must get the weather, and then make the request with Pensacola Approach Control. Remember TIN-STM when setting up your approach.



Tune the Radios

As the Instructor flies toward NAVIE to coordinate with ATC, you must tune the radios.

- UHF1: KNDZ ATIS 273.575 or preset Channel 1
 - Copy down ATIS and then tune KNDZ Tower Channel 4.

- VHF1: Pensacola Approach 118.6
- VHF2: Instructor Common 121.95

Set Up the TACAN RWY 32 (using TIN-STM)

1. **Tune** the NAVAID.
 - Santa Rosa (NGS) TACAN: 63X
 - Load the TACAN RWY 32 into the FMS as a backup navigation source.
2. **Identify** the NAVAID.
 - Use the automatic ID function.
3. Display the **needles**.
 - PTR TCN1
4. **Select** the navigation source.
 - NAV TCN1
5. **Twist** the OBS course.
 - 352 inbound/radial 172
 - Head of the needle must indicate 352.
 - TO/FROM indicator must be set to TO.
6. Set the **minimum** bug.
 - Set the minimum bug to 540 feet MSL for a straight-in landing to Runway 32 (Figure 2-3).

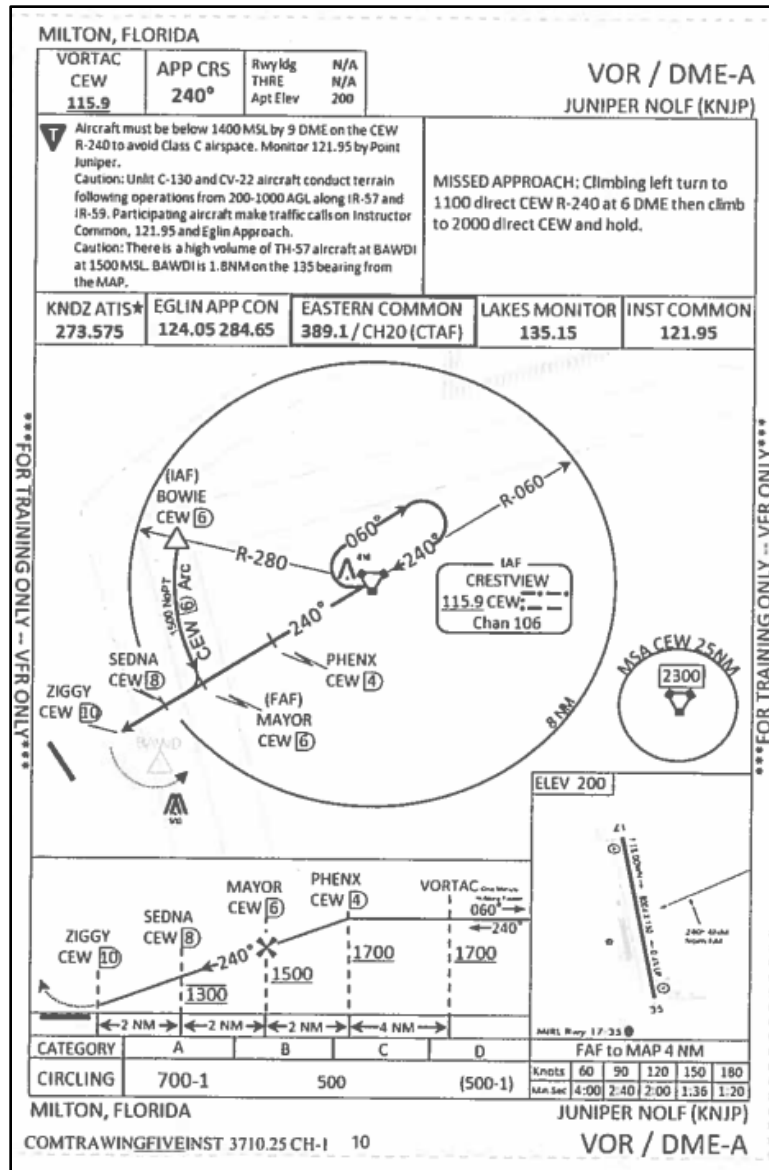


Figure 2-3 MFD and PFD Setup for the KINDZ TACAN RWY 32

205. ACTIVITY #5: INSTRUMENT APPROACH IN EASTERN OPERATING AREA

Your Instructor wants you to set up the student instrument approach VOR/DME-A at Navy Outlying Field (NOLF) Juniper (KNJP). The Instructor will act as ATC, but you must go through the appropriate steps.

First you need to get the weather, then make the request with Eglin Approach Control.



Tune the Radios

As the Instructor flies, you must tune the radios.

- UHF1: KNDZ ATIS 273.575 or preset Channel 1
 - Copy down ATIS and then tune Eastern Common Channel 20.
- VHF1: Instructor Common 121.95

2-14 PRACTICE ACTIVITIES

- VHF2: Eglin Approach 124.05

Set Up the VOR/DME-A (using TIN-STM)

Because the NAVAID at CEW is a VORTAC, this student approach may be flown using the VOR or TACAN frequency.

1. **Tune** the NAVAID.
 - Tune CEW VOR into NAV1 and NAV2.
 - CEW VOR: 115.9
 - Tune CEW TACAN.
 - CEW TACAN: 106X
2. **Identify** the NAVAID.
 - Use the automatic ID function.
3. Display the **needles**.
 - PTR VOR1 or PTR TCN1
4. **Select** the navigation source.
 - NAV VLOC2 or NAV TCN1, based on previous input
5. **Twist** the course needle.
 - The Instructor gives you vectors to the FAC, so twist 240 radial outbound.
6. Set the **minimum** bug.
 - The MDA is 700 feet MSL for circling to Runway 17 (Figure 2-4).



Figure 2-4 PFD Setup for the NOLF Juniper VOR/DME A

APPENDIX A: AVIONICS SETUP FOR TAKEOFF

Prior to each flight, the PFD/MFD should be set up according to the type of flight event being conducted. Use the following information to set up the avionics for takeoff.

PFD		
TOP Display:	BASIC	Turn indicator ON
BTM Display:	HSI	Essential Mode is optional
MFD		
TOP Display:	HALF ENGINE	
BTM Display:	AUDIO/RADIO	Frequency in Active VHF1: 124.85 VHF2: 121.95 UHF1: South Tower (Channel 4) UHF2: CH Mode set to appropriate Base <ul style="list-style-type: none"> - HT-8: Channel 5 - HT-18: Channel 6 - HT-28: Channel 7 - HITU: Channel 8 NAV1: 108.8 NAV2: 110.55 TCN: 70X ADF: N/A
TRNSPDR		
Set appropriate outbound code based on what South Whiting Clearance assigns. Set appropriate FLT ID using squadron code and side #. HT-8: VV8EXXX HT-18: VV1EXXX HT-28: VV7EXXX HITU: VV4EXXX		

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