Getting Started Guide to the Avionics in N12382

Purpose

The following is an overview of the new avionics that have been installed in N12382 and how to use the basic functionality for VFR flight. Before using N12382 for IFR flight, you should carefully study the Pilot's Guides for each unit and become familiar with the more advanced features of the avionics.

Contents

N12382 Panel Layout

The newly installed items are noted below in Figure 1. In addition to this, all new NAV, COM, GPS, and marker beacon antennas and coax cables were installed.

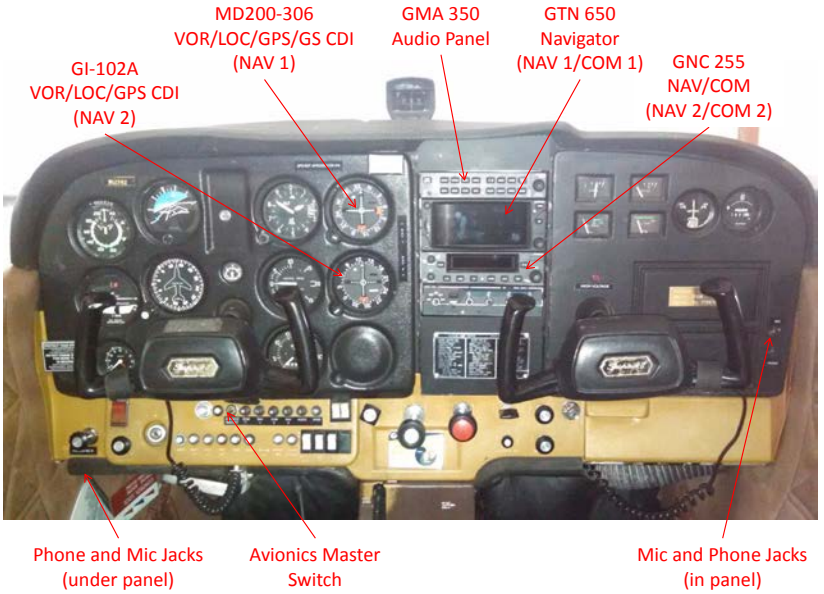

Figure 1: New Avionics in N12382.

Headset Jacks

N12382 has been rewired with all new stereo headset jacks. Be sure to set your headsets to "Stereo" to fully enjoy the audio experience that the GMA 350 audio panel offers.

- The pilot's phone and mic jacks are located vertically under the panel (see Figure 1).
- The co-pilot's mic and phone jacks are located on the right side of the panel.

  NOTE: Please be careful when inserting/removing the co-pilot plugs. The panel's plastic overlay is just snapped onto the panel and can be easily pulled off if care is not used when removing headset plugs.

- The passengers' phone and mic jacks are located in the metal panel above the baggage area.

Avionics Master Switch

Just like in N515ED, the Avionics Master Switch should remain off until after the engine is started (see Figure 1). This helps to prevent under voltage conditions that can occur when starting the engine, especially on 14V electrical systems.

Also, when preparing to power down the aircraft, the Avionics Master Switch should be turned off before the engine is shut off.

GMA 350 Audio Panel

The following instructions include the basics of using the GMA 350 audio panel.

Figure 2: GMA 350 Controls

Note: When a key is selected, a triangular annunciator above the key is illuminated.

Note: The GMA 350 was installed with 3D Audio turned on. Just set your headset to Stereo to take advantage of the 3D Audio. If you do not want 3D Audio, it can be toggled on/off by pressing and holding the PILOT key.

Note: AUX, MUS1, MUS2, and Voice Recognition are not connected in N12382's installation.

Note: There are cables located in N12382 for connecting your auxiliary music/phone to the 3.5mm input jack on the front of the GMA 350 for bringing music into you and your passengers.

COM Radios

- Illuminated annunciators above the COM keys indicate which COM radio(s) are currently being heard. The GTN 650 is COM1 and the GNC 255 is COM2.
- Illuminated annunciators above the MIC keys indicate the COM radio that is currently selected to transmit. The GTN 650 is MIC1 and the GNC 255 is MIC2.

  Note: If the annunciators above both MIC keys are illuminated, then the GMA is in SPLIT-COM mode and the Pilot is transmitting/receiving on radio 1 (GTN 650) and the Co-Pilot is transmitting/receiving on radio 2 (GNC 255).

NAV Radios

- When selected, audio from the selected NAV can be heard. The GTN 650 is NAV1 and the GNC 255 is NAV 2.

Intercom

- Press the PILOT, COPLT, and PASS keys to distribute as required. If the annunciators are lit, those positions will share intercom audio. If an annunciator is NOT lit, that position is isolated from the others.

Intercom Volume and Squelch

- The **VOL/CRSR** Knob controls selection and volume or manual squelch adjustment for audio sources that may not be adjustable anywhere else in the system. The small knob controls the volume or squelch. Turning the large knob activates and/or moves the cursor (flashing white annunciator/ or flashing blue annunciator in Blue-Select Mode) to select the audio source to adjust. The cursor will time-out after a few seconds and the position of the cursor will always default back to the **PILOT** Key. Pressing the small knob cancels the cursor.

Blue-Select Mode (Telephone/Entertainment Distribution)

- The telephone/entertainment () audio are distributed using the Blue-Select Mode. The Blue-Select Mode is entered by pressing the small knob when the volume control cursor (flashing white annunciator) is not active. If the volume control cursor is active, press the small knob twice. The first press will cancel the volume control cursor, the second will activate Blue-Select Mode.
- The annunciator over the Keys will be flashing blue. Any combination of the annunciators over the PILOT, COPLT, and PASS buttons may be blue. Select the desired button to turn the blue annunciator on or off to distribute the telephone/entertainment audio to selected crew/passenger positions.
- Selecting any key other than PILOT, COPLT, PASS, MUS1, MUS2, or  will cancel Blue-Select Mode. Pressing the small knob will also cancel Blue-Select Mode. After approximately ten seconds with no input, the Blue-Select Mode will automatically cancel.

Clearance Recorder and Player

- The GMA 350 contains a digital clearance recorder that records up to 2.5 minutes of the selected COM radio signal. Recorded COM audio is stored in separate memory blocks. Once 2.5 minutes of recording time have been reached, the recorder begins recording over the stored memory blocks, starting from the oldest block.
- Pressing the PLAY Key once plays the latest recorded memory block.
- Pressing the MKR/MUTE Key during play of a memory block stops play. If a COM signal is detected during play of a recorded memory block, play is halted.

- Pressing the PLAY Key while audio is playing begins playing the previously recorded memory block. Each subsequent press of the PLAY Key selects the previously recorded memory block.
- Powering off the unit automatically clears all recorded blocks.

Other Features

The GMA 350 includes other functions/features as well. For more details about the above functionality, or to learn more about the other GMA 350 features, please review the GMA 350 Pilot's Guide that can be downloaded from www.garmin.com (select *Explore* → *In the Air* → *Avionics & Safety* → *Audio Panels*, and select the *GMA 350*). The link to download the manual is on the right side of the screen.

GTN 650 GPS/NAV/COMM NAVIGATOR

The GTN 650 provides moving map, COM, and GPS/ILS/VOR/LOC and glideslope capabilities. In N12382, the GTN 650 is wired as COM 1 and NAV 1, and drives the MD200-306 VOR/LOC/GPS/GS CDI. The following instructions include the basics of using the GTN 650 touch screen navigator as a primer to get started for VFR usage.

Figure 3: GTN 650 Front Panel/Main Page

- **Direct-To Key** – Press to provide a direct course to a selected waypoint (such as an airport).
- **Home Key** – A single press of the HOME key returns the user to the main page to access features. Pressing and holding the HOME key while on any page will display the default NAV page.
- **Volume and Squelch Knob** – Controls volume of the COM and NAV radios. Press to use the IDENT function of the NAV radio. Pressing and holding the volume knob will change the frequency to the emergency frequency (121.5 MHz).
- **Large and Small Knobs** – Both are rotary knobs. The small knob can be pressed and held in to flip-flop COM and NAV frequencies.

COM/NAV Radio

The COM or NAV frequency is changed by touching the **STBY** window and using the keypad to enter the desired frequency. Touch **Enter** when finished or **Back** to exit without making changes. The frequency can also be changed by using the large (MHz) and small (KHz) knobs.

Note: The COM frequency display is shown by default. Press the center of the **small right knob** to change from the COM frequency display to the NAV frequency display.

- **Mon:** Monitors the standby COM frequency.
- **Find:** Displays categories for User, Recent, Nearest, and Flight Plan frequencies.
- **XFER:** Automatically enters the frequency to the active COM or NAV frequency window.
- **Frequency Transfer:** To FLIP/FLOP the active and standby NAV/COM frequencies, touch the active NAV/COM frequency field or touch and hold the small knob.

Direct-To Navigation

Press the Direct-To key to quickly navigate from your present position directly to a selected waypoint, flight plan waypoint, or nearest airport. After selecting the Waypoint identifier or airport, touch **Activate** or press the **small right knob**.

CDI Selection

The Nav 1 indicator can switch between the GPS navigation and the VOR tuned on the GTN 650. In order to switch the source, the GTN must be on the **Default NAV** page (which can be accessed from the **HOME** page or by pressing and holding the **HOME** key). On the bottom left of the screen is a button for **CDI**. Pressing this will switch the source of the indicator through the GTN. On the bottom of the GTN screen, an annunciator is shown as either VLOC or GPS for what source is currently selected. This choice also is reflected on the indicator itself by displaying NAV or GPS.

Navigation and Other Features

The GTN 650 is a very powerful navigator that has a great deal of functionality and offers a lot of information at your fingertips. To become more familiar with the basic functionality of the GTN 650, please review the GTN 650 Cockpit Reference Guide (CRG). For detailed information and to learn how to use the advanced functionality of the GTN 650, please review the GTN 650 Pilot's Guide. Both of these guides can be downloaded from www.garmin.com (select *Explore* → *In the Air* → *Avionics & Safety* → *GPS/NAV/Comm*, and select the *GTN 650*). The link to download the manual is on the right side of the screen. After clicking on *Manual*, choose *Appliance Data* from the *Choose product version* menu.

NOTE: It is also important to review the Airplane Flight Manual Supplement (AFMS) that is kept in N12382.

GNC 255A NAV/COMM

The GNC 255A provides COM and ILS/VOR/LOC capabilities. In N12382, the GNC 255A is wired as COM 2 and NAV 2, and drives the GI-102A VOR/LOC/GPS CDI. The following instructions include the basics of using the GNC 255A as a primer to get started for VFR usage.

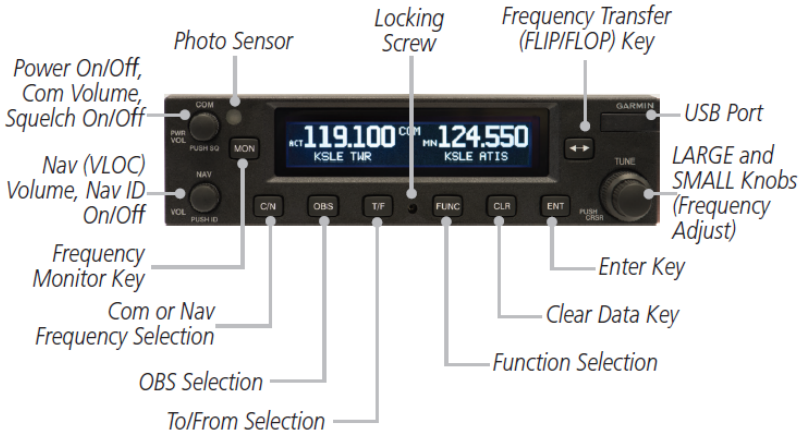

Figure 4: GNC 255 Front Panel Description

Power/Com Volume/Squelch Knob

- Rotate the knob clockwise to turn the power on. Make sure the Avionics Master Switch is on.
- The **Power/Com Volume/Squelch** controls audio volume for the Com radio (COM2).
- When the Com radio is active, press the **Power/Com Volume/Squelch** knob to toggle automatic squelch control On/Off.

Nav Volume/ID Knob

- The Nav Volume/ID knob controls audio volume for the NAV radio (NAV2).
- Press the Nav Volume/ID knob and the Morse code tones will be heard. When Morse code tone is active, "ID" will appear to the left of the NAV active frequency.

Tuning Large/Small Concentric (Cursor) Knobs

- The concentric knobs are used for tuning frequencies and data entry.
- When selecting a frequency, turn the **LARGE** knob to select the MHz value and the **SMALL** knob to select the kHz value.
- When entering text, use the **SMALL** knob to select characters and the **LARGE** knob to move the cursor.
- Pressing the SMALL knob (Cursor) from the COM or NAV display allows you to enter an identifier to look up the associated frequencies.

FLIP/FLOP Key

Press and release the **FLIP/FLOP** key to switch between the active (left-most) and standby (right-most) frequency. Switching between Com frequencies is disabled while you are transmitting.

C/N (Com/Nav) Key

Press the **C/N** key to select the COM or Nav (VLOC) radio mode.

OBS Key

Press the **OBS** key to see the current OBS setting and graphic CDI on the GNC 255 display.

T/F (To/From) Key

Press the **T/F** key to toggle between the bearing TO or radial FROM the active VOR. The T/F page also shows Distance/Speed/Time information. The **T/F** key does not operate for Localizer frequencies.

CLR (Clear) Key

Pressing the **CLR** key erases information, cancels entries, and resets timers.

ENT (Enter) Key

Press the **ENT** key to save selected values, to confirm a prompt, or to save the Standby frequency.

FUNC (Function) Key

The **FUNC** (Function) key access function categories for the following: the COM Radio, Nav Radio, System Configuration, and Timer. Pressing the **FUNC** key once displays the Function mode. Pressing the **FUNC** key a second time exits the Function mode.

MON (Monitor) Key

The **MON** (Monitor) key will engage the monitor function where the Standby frequency may be monitored while still listening to the Active frequency.

Other Features

The GNC 255A contains a lot more functionality and useful features, including timers and Com Database look-up for looking up Com frequencies. For detailed information and to learn how to use the more advanced functionality of the GNC 255A, please review the GNC 255 650 Pilot's Guide that can be downloaded from www.garmin.com (select *Explore → In the Air → Avionics & Safety → NAV/Comm*, and select the *GNC 255*). The link to download the manual

is on the right side of the screen. After clicking on *Manual*, choose *Appliance Data* from the *Choose product version* menu.

Course Deviation Indicators

Name	MD200-306	GI-102A
Location	Top	Bottom
Label	NAV 1	NAV 2
Connected To	GTN 650	GNC 255
Rectilinear Needle Movements	Yes	Yes
Integral GPS, NAV, and VLOC Mode Lights	Yes	Yes
Integral Resolver for VOR/GPS OBS Feedback	Yes	Yes
VOR/LOC/GPS Needle	Yes	Yes
TO/FROM Arrow	Yes	Yes
NAV Warning Flag	Yes	Yes
Glideslope Needle	Yes	No

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