

# G1000 Audio Panel

August 2016



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## Objectives:

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- Understand key definitions related to the G1000 audio system.
- Become familiar with the Audio Panel and G1000 audio controls and features.
- Become familiar with how to set up the Intercom, COM, and NAV audio.
- Review tips on troubleshooting the Intercom, COM, and NAV.
- Understand how to transmit and listen to FSS over a VOR.
- Review specific aircraft type oddities.

# Definitions

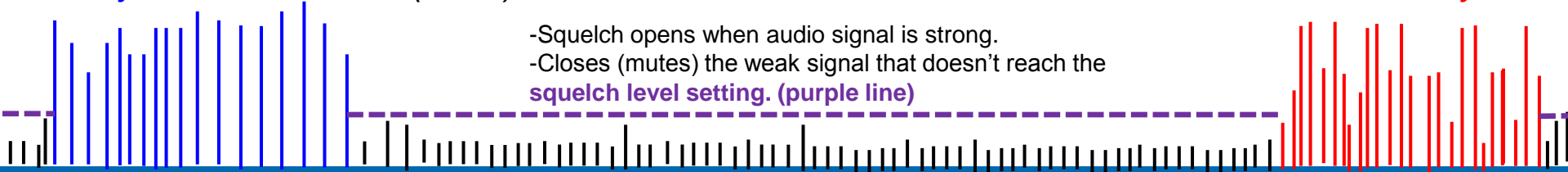
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- COM1 - This refers to your primary radio used to communicate on air band frequencies.
- COM2 – This refers to your secondary radio used to communicate on air band frequencies.
- Intercom – This refers to the audio system in the aircraft which allows communication between crewmembers.
- PTT- “Push-To-talk.” A button typically located on the control yoke or stick allows the pilot to transmit on COM1 or COM2 as selected on the audio panel.
- Mute – Indicates the audio will have no volume.
- ID – A feature on the Navigation Radios which allow you to hear the Morse code being emitted by the navigation beacon you have tuned in to.

# Definitions

- **Squelch** – is a circuit function that acts to suppress the audio output of a receiver in the absence of a sufficiently strong desired input signal. Squelch is widely used in radio communications to suppress the sound of channel noise when the radio is not receiving a transmission. Squelch can be “opened” which allows all signals entering the receiver to be heard. This can be useful when trying to hear distant, weak signals.
  - ▶ In our cockpits, there is generally a squelch circuit on the radio and a squelch on the cockpit intercom.
  - ▶ The squelch on the radio is generally only selectable to “open” or a manufacturer set level.
  - ▶ The squelch on the intercom is usually pilot selectable from “open” to closed. In the G1000, the pilot can select the squelch level, or allow the audio panel to automatically set the squelch level.

“Can you hear me?” ..... (static)..... “Yes I hear you.”



# G1000 Audio Panel

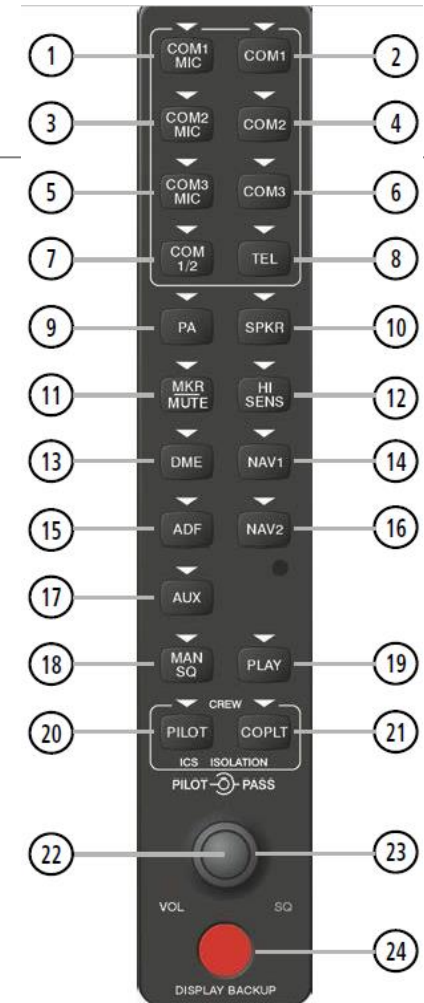
The G1000 Audio Panel is more technically called the GMA1347.

The audio panel is linked with both GIA's (Integrated Avionics Units) and GDU's (MFD/PFD Screens).



# Audio Panel - Overview

1. Selects Transmitter 1 for transmitting. (COM1 audio will be automatically received)
2. When selected, audio from COM1 can be heard.
3. Selects Transmitter 2 for transmitting. (COM2 audio will be automatically received)
4. When selected, audio from COM1 can be heard.
5. COM3 Mic – for optionally connected audio equipment
6. COM3 – for optionally connected audio equipment
7. Split COM operation. Pilot uses COM1 and the co-pilot uses COM2.
8. Telephone audio selector
9. Passenger address system (when activated it deselects COM)
10. Selects cabin speaker – COM and NAV audio can be heard on this speaker (no intercom).
11. Selects marker beacon receiver audio. Also stops play of recorded COM Audio.
12. Changes marker beacon sensitivity (HI when selected)
13. Turns on DME audio
14. Turns on NAV1 audio
15. Turns on ADF audio
16. Turns on NAV2 audio
17. Auxiliary input
18. Enables Manual Squelch. When activated press pilot knob to select volume/squelch. Turn Pilot/Pass knobs to adjust squelch or volume.
19. Press to play last recorded audio.
20. Selects pilot intercom isolation
21. Selects copilot intercom isolation
22. Pilot side knob (Volume or Squelch). Push to change VOL or SQ.
23. Copilot side knob (Volume or Squelch)
24. Reversionary Mode selector



Selected items have a white arrow illuminated above the button.

## Details on a few features

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- Isolation – if you press the PILOT isolation button, then the pilot will not hear any intercom from copilot or passengers. They will only hear the selected COM/NAV.
- PLAY button – The audio panel is capable of recording up to 2.5 minutes of the selected COM radio signal into separate memory blocks. Press the PLAY key once to play the latest block. The light above the PLAY button will flash when playback is occurring. Press the MKR/MUTE key during playback to stop playback. If a COM signal is detected during playback, play is halted. Pressing PLAY during a playback, will play the next previously recorded memory block.
- COM 1/2 - When selected the pilot can listen and transmit on COM1, while the co pilot can listen and transmit on COM2. The pilot can still monitor other selected channels such as NAV1, DME, etc. The pilot cannot monitor COM2 when this is selected. Note: If the selected frequencies on COM1 and COM2 are close together, interference may be heard during transmission on the radio.
- Volume of the speaker is adjusted through configuration in the G1000 system. Some aural alerts always come through the speaker, even if not selected.

# PFD/MFD Audio Controls

Active frequency

Standby frequency

121.900 ↔ 124.750 COM1  
126.000 136.975 COM2

Backlight dimming sensor – put your finger over it during daytime and watch the display dim.



Volume knob – Rotate to select the volume of the blue boxed COM. The volume level will be displayed as a percentage in the box. Note that COM1 and COM2 volume are independent! PUSH this knob to open the squelch on the selected COM. An “RX” will appear in the display (where the flip flop arrows are) if squelch is open. It is a great way to test your volume level.

Frequency transfer button (aka: flip flop button or swap button). Swaps the standby frequency with the active frequency.

COM label indicates these knobs are for COM1 and 2. See the NAV buttons on the other side of the panel for the NAV audio and frequency controls.

Little knob selects the number to the right of the decimal in the selected frequency. PUSH this knob in to move the blue box to the other COM.

Big knob selects number to the right of the decimal in the selected frequency.



# Intercom Setup

- How to set the intercom squelch with a headset plugged in to the Pilot's plug:

- ▶ To select auto squelch – make sure the MAN SQ button is unselected.
- ▶ To set manual squelch – select MAN SQ.
  - ◆ PUSH the Pilot knob on the audio panel to switch to “SQ.” Now the knobs control the pilot and passenger squelch instead of volume.
  - ◆ *While talking at a normal level (as if talking to ATC):*
    - Rotate the Pilot knob to the right until you do not hear your voice in your headset, then
    - Rotate the knob to the left slowly until you hear your voice and stop. If you don't hear anything, check volume level.
    - Repeat for Co-pilot mic (use the copilot knob!).
    - When you stop talking, squelch should close. If it remains open, rotate the knob 1 click to the right.
  - ◆ Leave the MAN SQ button selected to use your manual setting or it will go back to auto!



SQ indicates the knobs will change the Squelch. Push the pilot knob in to select Volume (VOL). VOL will illuminate on the lower left of the knob.

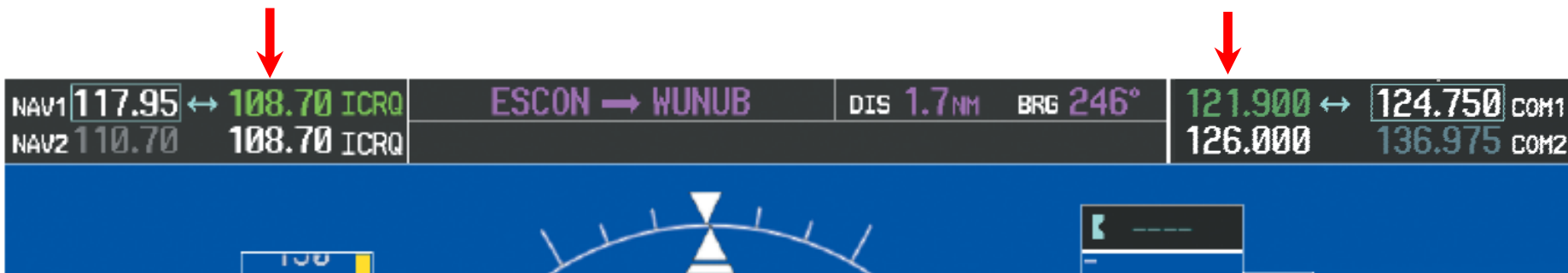
# COM Setup

- If you want to change the frequency, you must first set the frequency you want in the blue “Tuning Box”.
- Then use the COM knobs to set the frequency.
- Lastly, use the transfer button to flip the frequency to active position.



# COM Setup

- The upper left and right corner of your PFD/MFD screens indicate the currently selected COM/NAV frequency on the **INSIDE** of the display!
- The COM frequency you are transmitting on and the NAV frequency you are navigating (green needle) with on your CDI show up in Green in the active frequency.



The “RX” indicates you are currently receiving (open squelch).



The “TX” indicates you are currently transmitting (PTT activated). If you mic button is stuck – this will tell you. The system also auto detects a stuck mic, and will give an annunciation “COM1 PTT” if the mic is depressed for more than 35 seconds.

# NAV Setup

- Frequency changing works exactly like the COM controls but the NAV controls are on the opposite side of the display.
- Pushing the Volume knob will allow the pilot to hear the Morse code identifier being broadcast by the navigation facility the radio is tuned to (if in range and operational).



- A white “ID” text will appear in the location of the blue transfer arrows to indicate ID is on. You must also have the NAV1 button selected on your audio panel to send the audio from NAV1 to your headset/speaker as selected.
- If you don’t hear anything, check the volume.
- Once you have ID’d the navigation facility, turn off the NAV1 button. Otherwise you may have difficulty hearing voice communication over the navigation facility.



# Help! I can't hear the **Intercom!**

- No worries – fly your aircraft first and foremost.
- To Troubleshoot: Work from your Audio Panel then to Headset and check the following:
  - ▶ Volume up? Be sure you use the correct knob (Pilot or Pass depending on where you are plugged in). Opening the squelch on the COM is a great way to check the volume level in your headset.
  - ▶ Squelch set too high? (try re-adjusting)
  - ▶ Put the audio on the overhead speaker. Do you hear it now?
  - ▶ Check that your headset is properly plugged in.
  - ▶ If your headset has a mute switch, or volume knob, or its own squelch – check those too!
  - ▶ Try swapping headsets if you have the option or using the handheld mic.

# Help! I can't hear the **Radio!**

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- No worries – fly your aircraft first and foremost.
- To Troubleshoot: Work from your Radio to Audio Panel then to Headset and check the following:
  - ▶ Volume up? Opening the squelch on the COM is a great way to check the volume level in your headset.
  - ▶ Correct frequency and it is in the active position? Can you hear other frequencies? (try calling dispatch).
  - ▶ Is COM1(or what ever you are trying to listen to) selected on the audio panel?
  - ▶ Deselect COM1/2 button. You can't talk or hear COM2 from the pilot seat if this is selected.
  - ▶ Put the audio on the overhead speaker. Do you hear it now?

# Help! ATC can't hear me!

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- No worries – fly your aircraft first and foremost.
- To Troubleshoot: Work from your Radio to Audio Panel then to Headset and check the following:
  - ▶ Are you pushing the PTT button? Pushing hard enough? If you hear a click in your headset when you push it is likely working.
  - ▶ Do you have the appropriate COM selected to transmit? For example, COM1 MIC should be selected when trying to talk to a frequency in the COM1 Active window.
  - ▶ Correct frequency and it is in the active position? Can you hear other frequencies? (try calling dispatch).
  - ▶ Is COM1(or what ever you are trying to listen to) selected on the audio panel?
  - ▶ Deselect COM1/2 button. You can't talk or hear COM2 from the pilot seat if this is selected (opposite for copilot seat).
  - ▶ Put the audio on the overhead speaker. Do you hear it now?
  - ▶ Check your headset connections and any headset settings.
  - ▶ If you suspect your microphone has failed. Plug in the handheld microphone into your plug and try using it – remember it has a push to talk button too. Or you can plug into the copilot side, but remember to use the copilot PTT button.

# Talking to FSS using a VOR

- Put the VOR frequency in active for NAV1 (or NAV2).
- Push the NAV1 button on the audio panel to send the audio to your headset/speaker as selected.
- Be sure the volume is up on the VOR volume knob and ID is off.
- Set the frequency you wish to transmit to them on your COM1 (or COM2). Be sure it is in the active position and the volume is up.
- Select the COM you want to transmit and listen to on your audio panel.
- Press PTT and state, “Prescott Radio, Oxford \_\_\_\_, listening on 114.8, transmitting on 122.1 with request.” Once they acknowledge, go ahead with your request.



118.600 ↔ 121.100 COM1  
136.975 118.000 COM2



NAV1 117.95 ↔ 114.80 TFD  
NAV2 110.70 108.70 ICRQ



- PA-28-181 Archer TX has a separate intercom interface for the rear seats. It is located to the right of MFD.
- Typically, they are left as depicted in the photo for normal operation:
- The little switch between the knobs can be placed in either:
  - ▶ ICS – Intercom system on
  - ▶ Isolate - You will not hear anyone in the back seat if it is in this position!





**Questions?**

**Just ask your Instructor!**

**If you can't hear them answer you, make sure they're not selected to "isolate."**