

# GMA 240

Pilot's Guide



**GARMIN** ™

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This manual reflects the operation of GMA 240 units with mod level 0 or later. Some differences in operation may be observed when comparing the information in this manual to earlier or later Mod status levels.

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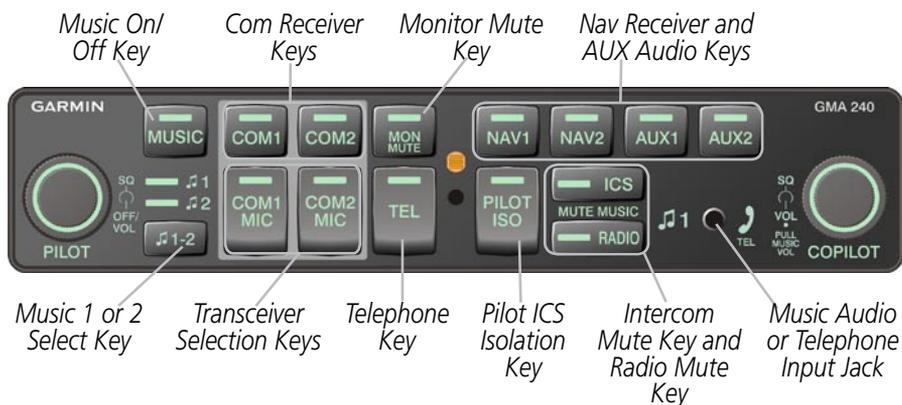
**CAUTION:** *Incorrect aircraft wiring could short the left channel or both channels to ground if a monaural headset is plugged into the stereo jacks. If wired incorrectly, fail-safe operation will not work.*

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**CAUTION:** *If monaural headsets are plugged into stereo jacks, power supply current increases, which may cause power supply fuse damage.*

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**Volume/Squelch:** Rotating the Pilot Volume Knob (left small knob) controls the ON and OFF function (Full CCW detent is OFF). The large left knob controls Pilot squelch.



Pulling the right volume knob (small knob) controls music volume, pushing in controls Copilot and passenger volume. The large right knob controls Copilot and passenger squelch.



**COM receiver keys.** Pressing a COM receiver key selects the receiver, which is heard in addition to the selected transceiver. Pressing again deselects the receiver.



**Transceiver selection keys.** Pressing a COM transceiver key selects the COM transmitter and associated receiver. One of the transceivers is always selected as active.



**Monitor Mute key.** Mutes all other monitored receivers when the active transceiver receives audio.



**Telephone key.** Pressing the TEL Key selects the Telephone interface. Pressing again deselects the telephone.



**NAV receiver and AUX keys.** Pressing a key selects the Nav receiver or AUX audio input. Pressing again deselects the audio.



**Master Music key.** Pressing the MUSIC Key allows the selected music input to be heard. Pressing again deselects music.



**Music Source 1 or 2 selection key and Music Source Annunciators.** Selects Music input 1 or 2. LED 1 or 2 illuminates to indicate which input is selected.



**Music 1/TEL jack.** External music device or telephone input.



**ICS Key.** When selected, music is muted during Intercom operation.



**RADIO Key.** When selected, music is muted during reception of selected aircraft radios.

## FEATURES AND OPERATION

The Garmin GMA 240 is a headphones only audio control panel. Pushbutton keys control audio selection of COM, NAV, telephone (TEL), and intercom. Two AUX inputs are available for additional avionics or audio devices. LED annunciators indicate when a key function is selected. Annunciator brightness is adjusted automatically by photocell dimming. LED-illuminated key brightness is adjusted by the radio dimming bus control.

In case power is interrupted or the unit is turned off, a fail-safe circuit connects the Pilot's headset, microphone, and PTT directly to COM 1 and the fail-safe alert audio, such as an autopilot disconnect tone.

In addition to radio squelch circuitry, MASQ™ (Master Avionics Squelch) processing further reduces ambient noise from the avionics inputs.

Upon installation, the unit may be configured in various ways depending on the aircraft type and the needs of the Pilot. See the configuration list at the end of this manual. Contact a Garmin-authorized service center for details and assistance in altering the configuration settings.

### MICROPHONES

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The GMA 240 Audio Panel can accept up to four (4) microphone inputs, allowing for a two-person crew and up to two (2) passenger intercom stations in the aircraft. A push-to-talk (PTT) switch must be pressed to transmit on a selected Transceiver. The passengers cannot transmit over the active COM radio, even if equipped with a PTT switch.

Each microphone input has a dedicated VOX circuit to ensure that only the active microphone is heard when squelch is broken.

## MONO/STEREO HEADSETS

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The unit can accommodate up to four (4) headsets (Pilot, Copilot and up to two (2) passengers). The use of stereo headsets is highly recommended. If monaural headsets are plugged into stereo jacks, power supply fuses may be damaged.

When wired correctly, the use of a monaural headset in a stereo jack shorts the right headset channel to ground. Anyone listening on a monaural headset hears only the left channel in both ears. If a monaural headset is used at one of the passenger positions, anyone else listening on a stereo headset hears audio in the left ear only, unless their headset has a mono/stereo switch set to mono.

## POWER ON/OFF

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The GMA 240 may be powered ON and OFF with the avionics master switch. The unit may also be turned ON and OFF with the Pilot ICS Volume Knob. Rotate the knob clockwise out of the detent to turn ON. Rotate the knob counterclockwise into the detent to turn OFF.

During power-up, the unit undergoes a self-test, illuminating all panel annunciator lights for about two (2) seconds. Once the self-test is complete, the unit is ready for use with the same keys selected as when the system was last powered OFF.

## TRANSCIVERS

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Pressing **COM1 MIC** or **COM2 MIC** Key selects the transmitter and receiver audio for the selected transceiver source. The active COM audio is always heard on the Pilot headphones. Audio level is controlled by the selected COM radio volume control.

Either audio source can be selected independently by pressing the **COM1** or **COM2** receiver keys. When selected this way, they remain active as audio sources regardless of which transceiver has been selected for microphone use.

When a microphone is keyed, the active transceiver's MIC key LED blinks approximately once per second indicating the PTT is pressed.

## RECEIVERS

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Pressing the **NAVI**, **NAV2**, **AUX1**, or **AUX2** Key selects the receiver audio for the selected source. Each audio source can be selected independently by pressing the appropriate receiver keys. They remain active as audio sources until deselected.

Press the **MON MUTE** Key to mute all monitored receiver audio when the active transceiver is receiving audio.

## INTERCOM

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The GMA 240 includes a four-position intercom system (ICS) with electronic cabin noise de-emphasis and two stereo music inputs. Two volume controls, one for the Pilot and one for a combined Copilot/passenger control, set intercom audio level. Music volume is controlled by pulling the right side (Copilot/passenger) volume control knob and turning it for the desired audio level.

ICS squelch is adjusted by turning the Pilot side and Copilot/passenger side **SQ** knob. Turning either knob clockwise increases the squelch threshold level, turning counterclockwise decreases the level.

The intercom system provides two modes of isolation, **PILOT** and **ALL**, controlled by pressing the **PILOT ISO** Key. In Pilot mode, (PILOT ISO annunciator is illuminated) the Pilot is isolated from all other occupants of the aircraft. In ALL mode, (PILOT ISO annunciator is off) everyone hears all occupants of the aircraft.

The unit can also be configured for Crew Isolation in place of Pilot Isolation. When configured for Crew Isolation, the Pilot and Copilot can communicate with each other while the passengers are able to communicate only with each other. In ALL mode, there is no isolation and every occupant can communicate with every other occupant.

Press the **ICS** Key to mute the music during intercom operation.

Press the **PILOT ISO** Key for Pilot or Crew isolation, depending on configuration.

Mode	Pilot Hears	Copilot Hears	Passenger Hears
<b>ALL (PILOT ISO not Selected)</b>	Selected Radios, Alerts, Telephone, Pilot, Copilot, Passengers, Music	Selected Radios, Alerts, Telephone, Copilot, Pilot, Passengers, Music	Selected Radios, Alerts, Telephone, Pilot, Copilot, Passengers, Music
<b>PILOT (PILOT ISO Selected)</b>	Selected Radios, Alerts, Telephone, Pilot, Music*	Copilot, Passengers, Music	Copilot, Passengers, Music
<b>CREW (When Crew Isolation is configured and PILOT ISO is selected)</b>	Selected Radios, Alerts, Telephone, Pilot, Copilot, Music*	Selected Radios, Alerts, Telephone, Copilot, Pilot, Music*	Passengers, Music
*A configuration option can allow music for these positions.			

**ICS Isolation Modes & Telephone Distribution**

**TELEPHONE**

The GMA 240 provides a full-duplex telephone interface. Press the **TEL** Key to activate telephone operation. When the telephone is active, operation depends on the ICS mode. See the ICS Isolation Modes & Telephone Distribution table. Telephone communication is much like using the intercom, allowing both parties to talk at once.

## ENTERTAINMENT INPUTS

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The GMA 240 provides two stereo entertainment inputs; MUSIC 1 and MUSIC 2. A MUSIC 1/TEL jack is also located on the GMA 240 front panel. The MUSIC 1/TEL jack can accept music or telephone sources.

The MUSIC 1 and MUSIC 2 rear inputs may be wired to either a stereo phone jack in a convenient place, or to an audio device in a fixed mount (e.g. a GPSMAP 396 dock or a CD player). These inputs are compatible with popular portable entertainment devices such as MP3 and CD players. The headphone outputs of these devices are plugged into the MUSIC 1 or MUSIC 2 jacks.

Press the **MUSIC** Key to enable the selected music input to be heard. Press again to disable music audio.

Press the **MUSIC 1-2** Key to select either the MUSIC 1 or MUSIC 2 input. Annunciators above the key indicate which music source is selected.

Either music source may be selected. The selected source is heard by all unless intercom isolation removes the audio. A music source plugged into the GMA 240 front panel MUSIC 1 jack will bypass the MUSIC 1 rear input.

MUSIC is soft-muted under certain conditions. Soft-muting refers to the temporary reduction of music volume and a gradual return to its original level. This muting occurs during alerts (unless configured otherwise), during selected radio reception if the **RADIO** Key is selected, during intercom operation if the **ICS** Key is selected, and any time the **TEL** Key is selected.

## GMA 240 PROGRAMMING OPTIONS

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Programming options include variable configurations that can be arranged by a Garmin authorized service center. Some options include a Pilot operable pushbutton or toggle switch or might be fixed configurations that are unchangeable. Configurations include the following:

- **COM Swap** - A remote mounted pushbutton is used to transfer the active microphone between COM1 MIC and COM2 MIC.
- **COM muting on transmit** - Audio on the other selected radios is muted while the active transceiver is transmitting.
- **Deactivate MASQ™** (master avionics squelch). Enables/disables master squelch. The threshold level of MASQ™ is also adjustable.
- **Internal Sidetone** - Enables/disables internal sidetone for radios that do not provide sidetone during transmission. This can be selected independently for COM1, COM2, and TEL.
- **Crew Isolation** - ICS isolation for the crew in place of Pilot isolation.
- **PILOT ISO Music** - Enable music audio to be heard by the Pilot during PILOT ISO mode.
- **Button Press Tone** - Enable beep tone annunciation of button presses.
- **Alert Music Mute** - Disable music interruption by alert audio. Default operation is recommended.
- **Jack TEL detect** - Phone detection is bypassed. Audio panel assumes a telephone is plugged into the jack whenever the **TEL** Key is selected.
- **Music mute by primary COM only** - When **RADIO** Key is selected, music is muted only when active COM is receiving audio.
- **Enable Keyed ICS** - Intercom MIC audio heard only when the corresponding **ICS** Key for the MIC position is pressed.
- **Individual volume controls** - The volume can be adjusted individually for each alert input, the rear connector pin TEL audio input, and the front accessory jack TEL audio input.



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